

Mr. Michael Sinclair
Rumford Paper Company, Rumford Mill
35 Hartford Street
Rumford, Maine 04276

September 21, 2005

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit ME0002054
Maine Waste Discharge License (WDL) Application W000955-5N-G-R
Final Permit/License

Dear Mr. Sinclair:

Enclosed please find a copy of your **final** MEPDES permit and Maine WDL which was approved by the Department of Environmental Protection. Please read the permit/license and its attached conditions carefully. You must follow the conditions in the order to satisfy the requirements of law. Any discharge not receiving adequate treatment is in violation of State Law and is subject to enforcement action.

Any interested person aggrieved by a Department determination made pursuant to applicable regulations, may appeal the decision following the procedures described in the attached DEP FACT SHEET entitled "*Appealing a Commissioner's Licensing Decision.*"

We would like to make you aware of the fact that your monthly Discharge Monitoring Reports (DMR) may not reflect the revisions in this permitting action for several months. However, you are required to report applicable test results for parameters required by this permitting action that do not appear on the DMR. Please see the attached April 2003 O&M Newsletter article regarding this matter.

If you have any questions regarding this matter, please feel free to call me at 287-7693.

Sincerely,

Gregg Wood
Division of Water Resource Regulation
Bureau of Land and Water Quality

Enc.

cc: Beth DeHaas, DEP/CMRO
David Webster, USEPA
Stephen Silva, USEPA

IN THE MATTER OF

RUMFORD PAPER COMPANY)	MAINE POLLUTANT DISCHARGE
RUMFORD, OXFORD COUNTY, MAINE)	ELIMINATION SYSTEM PERMIT
PULP & PAPER MANUFACTURING FACILITY)	AND
ME0002054)	WASTE DISCHARGE LICENSE
W000955-5N-G-R)	RENEWAL
APPROVAL		

Pursuant to the provisions of the Federal Water Pollution Control Act, Title 33 USC, Section 1251, et. seq., and Maine Law 38 M.R.S.A., Section 414-A et. seq., and all applicable regulations, the Department of Environmental Protection (Department hereinafter) has considered the application of the RUMFORD PAPER COMPANY (RPC hereinafter) a wholly owned subsidiary of NewPage, with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

The RPC has filed an application with the Department to renew State Waste Discharge License (WDL) #W000955-44-C-R that was issued on June 1, 1995. It is noted the 6/1/95 WDL was subsequently modified on October 18, 1998, to incorporate new limitations for color, dioxin and furan and modified again on June 10, 1999, to incorporate the terms and conditions of a new operational plan for the Gulf Island Pond Oxygenation Project (GIPOP) and modified again on July 23, 1999, to establish a schedule of compliance for color. All licensing actions expired on June 1, 2000.

The RPC mill in Rumford, Maine manufactures bleached market kraft pulp and fine coated paper. The RPC has applied to the Department for the issuance of a combination Maine Pollutant Discharge Elimination System (MEPDES) permit and WDL to discharge up to a monthly average flow of 34 million gallons per day (MGD) of treated process waste waters, treated spills of sanitary waste waters, treated landfill leachate, treated stormwater runoff, filter backwash and general housekeeping waste waters associated with a kraft pulp and papermaking facility from a single outfall to the Androscoggin River in Rumford, Maine. In addition to the aforementioned waste waters discharged, this permit authorizes treated discharges associated with or resulting from essential maintenance, regularly scheduled maintenance during start-up and shutdown, treated spills and release (whether anticipated or unanticipated) from anywhere in the permitted facility. The 6/1/95 WDL also authorized the RPC to discharge up to 47 MGD of cooling waters and cooling tower blowdown to the river via four additional outfalls. The RPC also maintains a multi-sector permit from the EPA for ten storm water outfalls. The mill produces an average of 1,842 tons per day (TPD) of fine coated paper and 216 tons/day of bleached market pulp from 1,252 tons/day of unbleached kraft pulp and 118 tons/day of groundwood pulp. Though pulp and paper production is up and down based on market conditions, these values are representative of normal production and are therefore being used to derive applicable production based technology limitations in this permitting action.

PERMIT SUMMARY

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) program in Maine. From this point forward, the program will be referred to as the MEPDES program and will utilize a permit number of #ME0002054 as a reference number for the RPC's MEPDES permit. It is noted the effective NPDES permits issued by the EPA for the pulp and papermaking facility on March 30, 1992, (#ME0002054) and for the co-generation facility on September 26, 1986, (#ME0023264) will be replaced by the MEPDES permit upon the effective date of the permit and all terms and conditions of the NPDES permits will be null and void.

This permit is significantly different than the effective NPDES permits issued by the EPA in 1986 and 1992, and the effective WDL issued by the State of Maine in 1995 (subsequently modified in 1998 and 1999) due in part to new regulations promulgated by the EPA in April of 1998 for the pulp and paper industry. The new regulation may be found at 40 Code of Federal Regulation (CFR) Part 430 and is often referred to as the "Cluster Rule."

This permit is carrying forward the following terms and conditions from WDL #W000955-44-C-R dated June 1, 1995, WDL #W000955-51-A-N dated February 27, 1996, and modifications WDL #W000955-5N-D-M dated October 18, 1998, WDL #W000955-5N-E-M dated June 10, 1999 and WDL W000955-5N-F-M dated July 23, 1999:

1. The monthly average flow limitation of 34.0 MGD for Outfall #001 and the daily maximum flow limitation of 30 MGD for Outfall #005.
2. The monthly average flow limitation of 17.0 MGD for Outfalls #002, #003 and #004 collectively.
3. The daily maximum temperature limits for Outfalls #001 - #005.
4. The technology based pH range limitation for Outfall #001.
5. The quarterly average technology based color limit of 150 lbs/ton of unbleached pulp produced for Outfall #001.
6. The daily maximum technology based concentration limit of <10 pg/L for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan) at the end of the bleach plant, Outfall #100, an internal waste stream for the mill.
7. The annual testing requirement for whole effluent toxicity (WET) and chemical specific (priority pollutant) testing for Outfall #001.
8. The thermal mixing zone.
9. The maximum and average interim limits for mercury.

PERMIT SUMMARY (cont'd)

The terms and conditions are different from WDL #W000955-44-C-R dated June 1, 1995, WDL #W000955-51-A-N dated February 27, 1996, and modifications WDL #W000955-5N-D-M dated October 18, 1998, WDL #W000955-5N-E-M dated June 10, 1999, and WDL W000955-5N-F-M dated July 23, 1999, in that this permit:

10. Establishes more stringent seasonal limitations for biochemical oxygen demand (BOD) and total suspended solids (TSS) based on the recommendations in a total maximum daily load (TMDL) finalized by the Department in May, 2005.
11. Establishes monthly average and daily maximum technology based mass limits for adsorbable organic halogens (AOX) for Outfall #001.
12. Establishes a more stringent daily maximum thermal load limitation for Outfalls #001 - #005 collectively.
13. Establishes revised pH range limitations for Outfalls #002 - #005.
14. Establishes daily maximum technology based concentration limits for 12 chlorinated phenolic compounds for the bleach plant, Outfall #100.
15. Establishes monthly average and daily maximum technology based mass limits for chloroform for the bleach plant, Outfall #100.
16. Establishes monthly average water quality based mass limitations for total phosphorus and ortho-phosphorus based on the recommendations in the TMDL finalized by the Department in May, 2005.
17. Establishes a new regime for oxygen injection from the Gulf Island Pond Oxygenation (GIPOP) system at Upper Narrows.
18. Establishes a requirement to inject oxygen into the Androscoggin River at Lower Narrows.
19. Establishes a five-year schedule of compliance for final water quality based mass limitations for TSS, total phosphorus and ortho-phosphorus and a five-year schedule of compliance for the additional oxygen injection requirements.
20. Requires the permittee to develop, implement, and periodically update a Best Management Plan (BMP) for spent pulping liquors from the mill operations.

PERMIT SUMMARY (cont'd)

21. Establishes a requirement for the permittee to maintain and annually update an Operations and Maintenance (O&M) plan for the waste water treatment facility.
22. Establishes a requirement to participate in annual ambient water quality monitoring of Gulf Island Pond.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet September 20, 2005 (original dated May 13, 2005 and subject to the terms and conditions contained herein, the Department makes the following CONCLUSIONS:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.
2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.
3. The provisions of the State's antidegradation policy, 38 M.R.S.A., Section 464(4)(F), will be met, in that:
 - (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;
 - (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;
 - (c) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;
 - (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification, that higher water quality will be maintained and protected; and
 - (e) Where a discharge will result in lowering the existing quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.
4. The discharge will be subject to effluent limitations that require application of best practicable treatment.

ACTION

THEREFORE, the Department APPROVES the above noted application of the RUMFORD PAPER COMPANY, to discharge up to a monthly average of 34 million gallons per day (MGD) of treated process waste waters, treated spills of sanitary waste waters, treated landfill leachate, treated stormwater runoff, treated discharges associated with or resulting from essential maintenance, regularly scheduled maintenance during start-up and shutdown, spills and release (whether anticipated or unanticipated) from anywhere in the permitted facility and general housekeeping waste waters associated with a kraft pulp and papermaking facility and discharge up to 47 MGD of cooling waters and cooling tower blowdown from four outfalls to the Androscoggin River in Rumford, Maine, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations including;

1. *"Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits,"* revised July 1, 2002, copy attached.
2. The attached Special Conditions, including effluent limitations and monitoring requirements.
3. This permit becomes effective on the date of signature below and expires at midnight five years thereafter.

DONE AND DATED AT AUGUSTA, MAINE, THIS ____ DAY OF _____, 2005.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAWN GALLAGHER, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application _____ June 1, 2000 _____.

Date of application acceptance _____ June 9, 2000 _____.

Date filed with Board of Environmental Protection _____

This order prepared by GREGG WOOD, BUREAU OF LAND AND WATER QUALITY

W09555NG

9/21/05

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- During the period beginning with the effective date of this permit and lasting through permit expiration, the permittee is authorized to discharge treated waste waters as described on page one of this permit and storm water from **Outfall #001 (001A & 001B)**⁽¹⁾, cooling water and cooling tower blowdown from **Outfalls #002, #003, #004 and #005**, filter backwash from **Outfall #006** and bleach plant effluent (internal waste stream) from **Outfall #100**, to the Androscoggin River. Such discharges shall be limited and monitored by the permittee as specified below. The italicized numeric values in brackets in the table below and the tables that follow are not limitations but are code numbers used by Department personnel to code Discharge Monitoring Reports (DMR's).

OUTFALL #001 – Secondary treated waste waters

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Flow [50050]	34 MGD [03]	---	Report MGD[03]	---	---	---	Continuous [99/99]	Recorder[RC]
BOD ₅ [00310] (June 1 – Sept. 30)	8,330 #/day	12,500 lbs/day	18,750 #/day	---	---	---	1/Day [01/01]	Composite
(Oct 1 – May 31)	14,400 #/day [26]	---	32,300 #/day [26]	---	---	---	5/Week [05/07]	Composite [24]

Footnotes:

- Outfall #001** - Outfall 001A is a 36" diameter pipe which is normally utilized to convey the treated process wastewaters from the wastewater treatment plant from the mill to the Androscoggin River. During periods of high flow in the river, most common in the spring and fall, discharges from Outfall 001A are hydraulically limited. As a result, the wastewater treatment facility experiences hydraulic limitations and best practicable treatment of the wastewater is jeopardized. This license authorizes the facility to discharge from Outfall 001B, a 36" diameter pipe located approximately 300 feet upstream of Outfall 001A. The discharges from Outfall 001B will receive the same degree of treatment as discharges from Outfall 001A.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

OUTFALL #001 – Secondary treated waste waters

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	<u>Monthly Average</u> as specified	<u>Weekly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Monthly Average</u> as specified	<u>Weekly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Measurement Frequency</u> as specified	<u>Sample Type</u> as specified
<i>Begin upon issuance</i> <i>TSS</i> [00530] <i>(June 1 – Sept 30)</i>	15,500 #/day	---	40,000 #/day	---	---	---	5/Week [05/07]	Composite
	12,200 #/day ⁽²⁾	---	[28]	---	---	---	1/Day [01/01]	Calculate
	32,900 #/day	---	50,000 #/day	---	---	---	5/Week [05/07]	[CA] Composite
	15,952 #/day ⁽³⁾ [26]	---	---	---	---	---	1/Year [01/YR]	Calculate
<i>Beginning June 1, 2010</i> <i>TSS</i> [00530] <i>(June 1 – Sept 30)</i>	15,500 #/day	---	40,000 #/day	---	---	---	5/Week [05/07]	Composite
	11,000 #/day ⁽²⁾	---	---	---	---	---	1/Day [01/01]	Calculate
	32,900 #/day	---	50,000 #/day	---	---	---	5/Week [05/07]	[CA] Composite
	15,952 #/day ⁽³⁾ [26]	---	---	---	---	---	1/Year [01/YR]	Calculate

Footnotes:

(2) 60–day rolling average defined as the average of sixty consecutive daily TSS discharges between June 1st - September 30th to be reported in the July, August, and September DMRs. The 60-day rolling average limit of 12,200 lbs/day becomes effective on June 1, 2006.

(3) Annual average defined as January 1st – December 31st of each year beginning calendar year 2006.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

OUTFALL #001 – Secondary treated waste waters

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	<u>Monthly Average</u> as specified	<u>Weekly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Monthly Average</u> as specified	<u>Weekly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Measurement Frequency</u> as specified	<u>Sample Type</u> as specified
<u>Total Phosphorus</u> [00665] (June 1 – September 30) (Begin upon issuance)	168 #/day	---	Report #/day	Report mg/L ⁽⁴⁾	---	Report mg/L ⁽⁴⁾	3/Week [03/07]	Composite
(Beginning June 1, 2008)	160 #/day	---	Report #/day	Report mg/L ⁽⁴⁾	---	Report mg/L ⁽⁴⁾	3/Week [03/07]	Composite
(Beginning June 1, 2010)	152 #/day[26]	---	Report #/day [26]	Report mg/L ⁴ [19]	---	Report mg/L ⁽⁴⁾ [19]	3/Week [03/07]	Composite[24]
<u>Ortho-phosphorus</u> [70507] (June 1 – September 30) (Begin upon issuance)	116 #/day	---	Report #/day	Report mg/L ⁽⁴⁾	---	Report mg/L ⁽⁴⁾	3/Week [03/07]	Composite
(Beginning June 1, 2008)	107 #/day	---	Report #/day	Report mg/L ⁽⁴⁾	---	Report mg/L ⁽⁴⁾	3/Week [03/07]	Composite
(Beginning June 1, 2010)	97 #/day[26]	---	Report #/day[26]	Report mg/L ⁴ [19]	---	Report mg/L ⁽⁴⁾ [19]	3/Week [03/07]	Composite[24]
<u>Oxygen Injection</u> (June 1 – Sept. 30) (Begin upon issuance)	---	---	Report #/day ⁽⁵⁾	---	---	---	1/Day[01/01]	Record[RC]
(Beginning June 1, 2010)	---	---	39,900 #/day ^(6a)	---	---	---	1/Day[01/01]	Record[RC]
	---	---	9,573#/day ^(6b) [26]	---	---	---	1/Day[01/01]	Record [RC]

Footnotes:

(4) Report two (2) significant figures.

(5) Injected at Upper Narrows. See Special Condition K, *Gulf Island Pond Oxygen Injection Operation*.

(6a) At Upper Narrows. Assumes RPC injects 9,573 lbs (assumes 33% efficiency) at Lower Narrows or an equivalent amount given an alternate efficiency.

(6b) At Lower Narrows. Assumes RPC injects 39,900 lbs (assumes 33% efficiency) at Upper Narrows or an equivalent amount given an alternate efficiency.

SPECIAL CONDITIONS

OUTFALL #001 – Secondary treated waste waters (cont'd)

Effluent Characteristic	Discharge Limitations					Minimum Monitoring Requirements	
	<u>Monthly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Monthly Average</u> as specified	<u>Weekly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Measurement Frequency</u> as specified	<u>Sample Type</u> as specified
<u>Temperature</u> [00011] <i>June 1 – Sept. 30</i> <i>Oct. 1 – May 31</i>	---	---	---	---	110°F [15] 110 °F [15]	1/Day [01/01] 1/Week [01/07]	Measure [MS] Measure [MS]
Adsorbable Organic Halogen ⁽⁷⁾ (AOX) [03594]	1,560 #/day [26]	2,381 #/day [26]	---	---	---	3/Week [03/07]	Composite [24]
Color ⁽⁸⁾ [00084]	150 ADTUBP [42]	---	---	---	---	3/Week [03/07]	Calculate [CA]
pH (Std. Unit) [00400]	---	---	---	---	5.0 – 9.0 SU [12]	1/Day [01/01]	Grab ⁽⁹⁾ [GR]

SPECIAL CONDITIONS

OUTFALL #001 – Secondary treated waste waters (cont'd)

SURVEILLANCE LEVEL TESTING – Beginning upon the effective date of this permit and lasting through 12 months prior to permit expiration.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Measurement <u>Frequency</u> as specified	Sample <u>Type</u> as specified
Whole Effluent Toxicity (WET) ⁽¹⁰⁾						
<u>A-NOEL</u>						
<i>Ceriodaphnia dubia</i> [TDA3B]	---	---	---	Report% [23]	1/Year [01/YR]	Composite [24]
<i>Pimephales promelas</i> [TDA6C]	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
<u>C-NOEL</u>						
<i>Ceriodaphnia dubia</i> [TBP3B]	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
<i>Pimephales promelas</i> [TBP6C]	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Chemical Specific ⁽¹¹⁾ [50008]	---	---	---	Report ug/L[28]	1/Year [01/YR]	Composite/ Grab [24/GR]

SCREENING LEVEL TESTING – Beginning twelve months prior to the expiration date of the permit.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Measurement <u>Frequency</u> as specified	Sample <u>Type</u> as specified
Whole Effluent Toxicity (WET) ⁽¹⁰⁾						
<u>A-NOEL</u>						
<i>Ceriodaphnia dubia</i> [TDA3B]	---	---	---	Report % [23]	1/Quarter [01/90]	Composite [24]
<i>Salvelinus fontinalis</i> [TDA6F]	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
<i>Pimephales promelas</i> [TDA6C]	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
<u>C-NOEL</u>						
<i>Ceriodaphnia dubia</i> [TBP3B]	---	---	---	Report % [23]	1/Quarter [01/90]	Composite [24]
<i>Salvelinus fontinalis</i> [TBQ6F]	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
<i>Pimephales promelas</i> [TBP6C]	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
Chemical Specific ⁽¹¹⁾ [50008]	---	---	---	Report ug/L[28]	1/Quarter [01/90]	Composite/ Grab [24/GR]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Outfalls #001 – Process Waste Waters

Footnotes:

Effluent sampling for Outfall #001 shall be sampled for all parameters at a location just prior to the parshall flume on a year-round basis. Any change in sampling location(s) must be reviewed and approved by the Department in writing.

Sampling – All sampling and analysis must be conducted in accordance with; a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Human Services.

- (7) **AOX** - The analytical method to be used to determine adsorbable organic halogens shall be EPA Method 1650 for which a ML (Minimum Level) of 20 ug/l shall be attained. The ML is defined as the level at which the analytical system gives recognizable signals and an acceptable calibration point. The mass discharged shall be based on air-dried metric tons of brown stock entering the bleach plant at the stage where chlorine or chlorine based compounds are first added.
- (8) **Color** – The limitation is a calendar quarterly average limitation. Quarterly results shall be reported in the monthly DMR's for the months of March, June, September and December of each calendar year. The permittee shall monitor the true color (at a pH of 7.6 S.U) in the effluent from Outfall #001 at a minimum of three (3) times per week. See Special Condition G, *Color*, of this permit for reporting requirements. The calculated mass discharged, expressed as pounds per ton of air dried unbleached pulp (ADTUBP) entering the bleach plant. A color pollution unit is equivalent to a platinum cobalt color unit as described in NCASI Technical Document #253. A pound of color is defined as the number of color pollution units multiplied by the volume of effluent discharged in million gallons per day multiplied by 8.34.
- (9) **pH** - For Outfall #001, criteria found at Department rule Chapter 525 (4)(VIII)(A) (1&2) regarding pH limitations under continuous monitoring is applicable to these discharges when continuous monitoring is utilized.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Outfalls #001 – Process Waste Waters

Footnotes:

- (10) Whole Effluent Toxicity (WET) testing - Definitive WET testing is a multi-concentration testing event (a minimum of five dilutions set at levels to bracket the acute and chronic critical water quality thresholds of 3.2%), which provides a point estimate of toxicity in terms of No Observed Effect Level, commonly referred to as NOEL or NOEC. A-NOEL is defined as the acute no observed effect level with survival as the end point. C-NOEL is defined as the chronic no observed effect level with survival, reproduction and growth as the end points.

Beginning upon issuance of the permit and lasting through 12 months prior to permit expiration, the permittee shall initiate WET testing at a frequency of 1/Year on the water flea (*Ceriodaphnia dubia*) and on the fathead minnow (*Pimephales promelas*). Tests shall be conducted in a different calendar quarter of each year such that a WET test is conducted in all four calendar quarters during the first four years of the permit. Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing. Invalid or problematic test results shall be identified in the submittal.

Beginning twelve months prior to the expiration date of the permit, the permittee shall initiate screening level WET tests at a frequency of 1/Quarter (four consecutive calendar quarters). Testing shall be conducted on the water flea (*Ceriodaphnia dubia*) and the fathead minnow (*Pimephales promelas*) in two of the four calendar quarters and conducted on the water flea (*Ceriodaphnia dubia*) and the brook trout (*Salvelinus fontinalis*) in the remaining two of the four calendar quarters. Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing. Invalid or problematic test results shall be identified in the submittal.

Toxicity tests must be conducted by an experienced laboratory approved by the Department. The laboratory must follow procedures as described in the following U.S.E.P.A. methods manuals.

- a. Short Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms, Fourth Edition, October 2002, EPA-821-R-02-013.
- b. Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012.

The permittee is also required to analyze the effluent for the parameters specified in the analytical chemistry section of the form in Attachment A of this permit every time a WET test is performed for compliance with this permit. Analytical chemistry is not required for WET tests conducted for a toxicity identification evaluation (TIE), toxicity reduction evaluation (TRE) or for other investigative purposes.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Outfalls #001 – Process Waste Waters

Footnotes:

- (11) **Priority Pollutants** (chemical specific testing under Department Rule Chapter 530.5) are those listed by the USEPA pursuant to Section 307(a) of the Clean Water Act and published at 40 CFR Part 122, Appendix D, Tables II and III.

Beginning upon issuance of the permit and lasting through 12 months prior to permit expiration, surveillance level chemical specific testing shall be conducted at a frequency of once per year (any calendar quarter). **Beginning 12 months prior to the expiration date of the permit**, screening level chemical specific testing shall be conducted at a frequency of four per year (four consecutive calendar quarters). Chemical specific testing shall be conducted on samples collected at the same time as those collected for surveillance or screening level whole effluent toxicity tests, where applicable. Chemical specific testing shall be conducted using methods that permit detection of a pollutant at existing levels in the effluent or that achieve minimum reporting levels of detection as specified by the Department. See Attachment F of the Fact Sheet for a list of Department reporting limits. Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing. Invalid or problematic test results shall be identified in the submittal. For the purposes of DMR reporting, enter a “NODI-9” for *no testing done this monitoring period* or “1” for *yes, testing done this monitoring period*.

All mercury sampling required by this permit or required to determine compliance with interim limitations established pursuant to Department rule Chapter 519, shall be conducted in accordance with EPA’s “clean sampling techniques” found in EPA Method 1669, Sampling Ambient Water For Trace Metals At EPA Water Quality Criteria Levels. All mercury analysis shall be conducted in accordance with EPA Method 1631, Determination of Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Fluorescence Spectrometry.

SPECIAL CONDITIONS

OUTFALL #002 – Non-contact cooling waters

Effluent Characteristic		Discharge Limitations			Minimum Monitoring Requirements	
	<u>Monthly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Monthly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Measurement Frequency</u> as specified	<u>Sample Type</u> as specified
Flow [50050]	---	---	17.0 MGD ⁽¹⁾ [03]	Report MGD [03]	1/Week [01/07]	Measure [MS]
Temperature [00011]	---	---	---	105°F [15]	1/Week [01/07]	Measure [MS]
pH (Effluent) [00400]	---	---	---	5.0 – 9.0 SU ⁽²⁾ [12]	1/Week [01/07]	Grab [GR]
pH (Ambient) [00400]	---	---	---	Report SU ⁽²⁾ [12]	When applicable [02/99]	Grab [GR]

OUTFALL #003 – Non-contact cooling waters

Effluent Characteristic		Discharge Limitations			Minimum Monitoring Requirements	
	<u>Monthly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Monthly Average</u> as specified	<u>Daily Maximum</u> As specified	<u>Measurement Frequency</u> as specified	<u>Sample Type</u> as specified
Flow [50050]	---	---	17.0 MGD ⁽¹⁾ [03]	Report MGD [03]	1/Week [01/07]	Measure [MS]
Temperature [00011]	---	---	---	105°F [15]	1/Week [01/07]	Measure [MS]
pH (Effluent) [00400]	---	---	---	5.0 – 9.0 SU ⁽²⁾ [12]	1/Week [01/07]	Grab [GR]
pH (Ambient) [00400]	---	---	---	Report SU ⁽²⁾ [12]	When applicable [02/99]	Grab [GR]

Footnotes:

See page 15 of this permit.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

OUTFALL #004 – Non-contact cooling waters

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> As specified	Measurement <u>Frequency</u> as specified	Sample <u>Type</u> as specified
Flow [50050]	---	---	17.0 MGD ⁽¹⁾ [03]	Report MGD [03]	1/Week [01/07]	Measure [MS]
Temperature [00011]	---	---	---	105°F [15]	1/Week [01/07]	Measure [MS]
pH (Effluent) [00400]	---	---	---	5.0 -9.0 SU ⁽²⁾ [12]	1/Week [01/07]	Grab [GR]
pH (Ambient) [00400]	---	---	---	Report SU ⁽²⁾ [12]	When applicable [02/99]	Grab [GR]

Footnotes:

Outfalls #002, #003 and #004

- (1) The discharge flow from Outfalls #002, #003 and #004 collectively or individually may not exceed a monthly average flow of 17.0 MGD.
- (2) The pH of the discharge shall be in the range of 5.0 – 9.0 standard units unless exceedences of this pH range are due to ambient pH levels in the Androscoggin River outside of this range. In such an event, the pH of the discharge may not be more than 0.5 standard units higher or lower than the ambient pH of the river as measured upstream of all the outfalls. In such an event, the permittee shall report the pH of both the discharge and the river.

SPECIAL CONDITIONS

OUTFALL #005 – Co-generation (Non-contact cooling waters and cooling tower blowdown)

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Daily Maximum As specified	Measurement Frequency as specified	Sample Type as specified
Flow [50050]	---	---	Report MGD [03]	30 MGD [03]	Continuous [99/99]	Record [RC]
Temperature [00011]	---	---	---	105°F [15]	Continuous [99/99]	Record [RC]
Total residual chlorine [50060]				0.2 mg/L [15]	1/Day [01/01]	Grab [GR]
pH (Effluent) [00400]	---	---	---	5.0 – 9.0 SU ⁽¹⁾ [12]	1/Month [01/30]	Grab [GR]
pH (Ambient) [00400]	---	---	---	Report SU ⁽¹⁾ [12]	When applicable [02/99]	Grab [GR]

Footnotes:

- (1) The pH of the discharge shall be in the range of 5.0 – 9.0 standard units unless exceedences of this pH range are due to ambient pH levels in the Androscoggin River outside of this range. In such an event, the pH of the discharge may not be more than 0.5 standard units higher or lower the ambient pH of the river as measured upstream of all the outfalls. In such an event, the permittee shall report the pH of both the discharge and the river.

Operation of the cooling tower is required between May 15 and September 30 each year.

Down-time of the cooling tower for the purposes of maintenance shall be kept to a minimum and scheduled during times when the thermal discharge will have minimal impact on the receiving waters. **The permittee is required to verbally contact the Department within 24 hours and in writing within 5 days should the cooling tower be off-line for more than a 12-hour period of time.**

SPECIAL CONDITIONS

OUTFALL #006 – Kinney Strainer – (Filter backwash)

No limitations or monitoring requirements are being established for this outfall due to the nature of the discharge.

The discharge shall be uncontaminated except for backwashed solids and debris removed from the river.

SPECIAL CONDITIONS

OUTFALL #100 (Combined Bleach Plant)

Effluent Characteristic		Discharge Limitations			Minimum Monitoring Requirements	
	<u>Monthly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Monthly Average</u> as specified	<u>Daily Maximum</u> as specified	<u>Measurement Frequency</u> as specified	<u>Sample Type</u> as specified
Flow [50050]	Report MGD [03]	Report MGD [03]	---	---	1/Day [01/01]	Recorder [RC]
2,3,7,8 TCDD (Dioxin) ⁽¹⁾ [34675]	---	---	---	<10 pg/L ⁽²⁾ [3L]	1/Year [01/YR]	Composite [24]
2,3,7,8 TCDF (Furan) ⁽¹⁾ [38691]	---	---	---	<10 pg/L ⁽²⁾ [3L]	1/Year [01/YR]	Composite [24]
Trichlorosyringol ⁽³⁾ [73054]	---	---	---	<2.5 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichlorocatechol ⁽³⁾ [73037]	---	---	---	<5.0 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
3,4,,6- Trichlorocatechol ⁽³⁾ [51024]	---	---	---	<5.0 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichloroguaiacol ⁽³⁾ [61024]	---	---	---	<2.5 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
3,4,6-Trichloroguaiacol ⁽³⁾ [51022]	---	---	---	<2.5 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
4,5,6-Trichloroguaiacol ⁽³⁾ [73088]	---	---	---	<2.5 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
2,4,5-Trichlorophenol ⁽³⁾ [61023]	---	---	---	<2.5 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
2,4,6-Trichlorophenol ⁽³⁾ [34621]	---	---	---	<2.5 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
Tetrachlorocatechol ⁽³⁾ [79850]	---	---	---	<5.0 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
Tetrachloroguaiacol ⁽³⁾ [73047]	---	---	---	<5.0 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
2,3,4,6-Tetrachlorophenol ⁽³⁾ [77770]	---	---	---	<2.5 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
Pentachlorophenol ⁽³⁾ [39032]	---	---	---	<5.0 ug/L ⁽²⁾ [28]	1/Month [01/30]	Composite [24]
Chloroform ⁽⁴⁾ [32106]	10.4 #/day [26]	17.3 #/day [26]	---	---	1/Week [01/07]	Grab [24]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Outfall #100 (Combined Bleach Plant)

Footnotes:

- (1) **2,3,7,8 TCDD (Dioxin) & 2,3,7,8 TCDF (Furan)** – The analytical method to be used to determine the concentrations of dioxin and furan shall be EPA Method 1613. See Special Condition L, *Dioxin/Furan Certification*, of this permit for annual certification requirements.
- (2) **Minimum Levels (ML's)** - The limitations established in this permitting action for dioxin, furan and the 12 chlorinated phenolic compounds are equivalent to the ML's established for EPA Methods 1613 and 1653 respectively. Compliance will be based on the ML's. For the purposes of reporting test results for on the monthly DMR, the following format shall be adhered to:

Detectable results - All detectable analytical test results shall be reported to the Department including results which are detected below the respective ML.

Non-detectable results - If the analytical test result is below the respective ML, the concentration result shall be reported as <X where X is the detection level achieved by the laboratory for each respective parameter.

- (3) **12 Chlorinated phenolic compounds** - The analytical method to be used to determine the concentrations of these compounds shall be EPA Method 1653.
- (4) **Chloroform** - The preferred analytical method to be used for chloroform is EPA Method 1624B for which a ML of 20 ug/l shall be attained. Other approved EPA methods are 601 and 624, and Standard Method 6210B and 6230B. The permittee must collect separate grab samples from the acid and alkaline bleach plant filtrates for chloroform analysis. Samples to be analyzed for chloroform may be taken over a period not to exceed 32 hours where a minimum of six (6) grab samples are collected, each grab sample being at least three (3) hours apart but no more than 16 hours apart.

SPECIAL CONDITIONS

OUTFALL #00TA – Total thermal load from Outfalls #001, #002, #003 and #004

Effluent Characteristic	Discharge Limitations					Minimum Monitoring Requirements	
	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Monthly <u>Average</u> as specified	Weekly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Measurement <u>Frequency</u> as specified	Sample <u>Type</u> as specified
Thermal Discharge <i>June 1 – Sept. 30</i> [00017]	---	---	---	---	1.21 EE10 ⁽¹⁾ BTU's/Day [34]	1/Day [01/01]	Calculate [CA]

OUTFALL #00TB – Should the cooling towers from the Cogeneration facility be off-line and a discharge from Outfall #005 become necessary the total thermal load from Outfalls #001, #002, #003, #004 & #005

Effluent Characteristic	Discharge Limitations					Minimum Monitoring Requirements	
	Monthly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Monthly <u>Average</u> as specified	Weekly <u>Average</u> as specified	Daily <u>Maximum</u> as specified	Measurement <u>Frequency</u> as specified	Sample <u>Type</u> as specified
Thermal Discharge <i>June 1 – Sept. 30</i> [00017]	---	---	---	---	2.05 EE10 ⁽¹⁾ BTU's/Day [34]	1/Day [01/01]	Calculate [CA]

Footnotes:

The daily maximum thermal limitations are in effect when the daily Androscoggin River temperature as measured at the Upper Hydro Station is $\geq 66^{\circ}$ F.

(1) 1.21 EE10 and 2.05 EE10 represent 1.21×10^{10} and 2.05×10^{10} . See Special Condition I, *Thermal Load*, of this permit for the equation to calculate the thermal loading.

SPECIAL CONDITIONS

B. NARRATIVE EFFLUENT LIMITATIONS FOR ALL OUTFALLS

1. The effluent shall not contain a visible oil sheen, foam, or floating solids which would impair the usages designated by the classification of the receiving waters. The Railroad Street Bridge will serve as an initial observation point for the detection of abnormal levels of foam and floating solids in the river. Should abnormal levels of foam or floating solids be detected at said bridge, the permittee is required to take necessary steps to mitigate or eliminate the source(s) of foam or floating solids. The permittee is required to notify the Department of such events in accordance with Standard Condition D, *Reporting Requirements*, of this permit.
2. The effluent shall not contain materials in concentrations or combinations which are hazardous or toxic to aquatic life; or which would impair the usages designated by the classification of the receiving waters.
3. The discharge shall not impart color, taste, turbidity, toxicity, radioactivity or other properties which cause those waters to be unsuitable for the designated uses and characteristics ascribed to their class.
4. Notwithstanding specific conditions of this permit, the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.

C. TREATMENT PLANT OPERATOR

The waste water treatment facility must be operated under the direction of a person holding a **Grade V** certificate [or Maine Professional Engineer (PE) certificate] pursuant to Title 32 M.R.S.A., Section 4171 et seq. All proposed contracts for facility operation by any person must be approved by the Department before the permittee may engage the services of the contract operator.

D. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfalls specified in this permit. Discharges of waste water from any other point source are not authorized under this permit, but shall be reported in accordance with Standards Condition B(5)(Bypass) of this permit.

SPECIAL CONDITIONS

E. NOTIFICATION REQUIREMENT

In accordance with Standard Condition D, the permittee shall notify the Department of the following:

1. Any substantial change (realized or anticipated) in the volume or character of pollutants being introduced into the waste water collection and treatment system.
2. For the purposes of this section, adequate notice shall include information on:
 - a. The quality and quantity of waste water introduced to the waste water collection and treatment system; and
 - b. Any anticipated change in the quality and quantity of the waste water to be discharged from the treatment system.

F. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report (DMR) forms provided by the Department and **postmarked on or before the thirteenth (13th) day of the month or hand-delivered to a Department Regional Office such that the DMR's are received by the Department on or before the fifteenth (15th) day of the month** following the completed reporting period. A signed copy of the DMR and all other reports required herein shall be submitted to the following addresses:

Maine Department of Environmental Protection
Central Maine Regional Office
Bureau of Land & Water Quality
Division of Engineering, Compliance & Technical Assistance
State House Station #17
Augusta, ME. 04333

SPECIAL CONDITIONS

G. COLOR

The permittee is required to report the daily average color discharged for a calendar quarter expressed as pounds of color per ton of unbleached pulp produced. Supporting calculations, in a format similar to the format illustrated below must be retained on-site for at least three (3) years and made available to Department or EPA personnel upon request.

Quarter	#001 Flow	Color Conc	Mass	Unbleached Pulp Production
<u>Sample Date</u>	<u>(mgd)</u>	<u>(cpu)</u>	<u>(lbs/day)</u>	<u>tons/day</u>
xx/xx/xx	31	310	80,147	1,100
xx/xx/xx	30	340	85,069	1,050
.....				
xx/xx/xx	31	315	<u>81,440</u>	<u>1,010</u>
Quarterly Average			X=82,219	X=1,053

Quarterly Average Mass per Ton = $82,219/1,053 = 78$ lbs color/ton

H. ZONE OF INITIAL DILUTION & MIXING ZONE

The zone of initial dilution for the thermal discharge from the Rumford mill is described as beginning at Outfall 001 and extending downstream a distance of approximately 2.2 miles to the west end (upstream end) of Burke Island. See Attachment B of this permit for a map illustrating the extent of the zone of initial dilution.

The mixing zone established by the Department for the thermal discharge from the Rumford mill is described as beginning at Outfall #001 and extending downstream approximately 12 miles to a point where the Dixfield, Canton and Peru Town lines intersect at a point in the thread of the Androscoggin River. See Attachment B of this permit for a map illustrating the extent of the mixing zone.

The receiving waters shall not be tested for temperature violations within the designated zone of initial dilution or the established mixing zone.

SPECIAL CONDITIONS

I. THERMAL LOAD

The flow and temperature limitations for each outfall are in effect year-round. The daily maximum thermal load limitation of 1.21×10^{10} BTU's/day from Outfall 001, 002, 003 and 004 collectively, is in effect when the daily Androscoggin River temperature as measured at the Upper Hydro Station is $\geq 66^\circ$ F. Should the cooling towers from the Cogeneration facility be off-line and a discharge from Outfall #005 become necessary, the facility will be limited to a daily maximum thermal load of 2.05×10^{10} BTU's/Day from Outfalls 001, 002, 003, 004 and 005 collectively. Between June 1 and September 30 of each year, the Qe, Te and Tr shall be recorded on a daily basis and the thermal load from the mill shall be calculated on a daily basis in accordance with the following formula:

$$[(Q_{e_{001}})(T_{e_{001}} - T_r) + (Q_{e_{002}})(T_{e_{002}} - T_r) + \dots + (Q_{e_{005}})(T_{e_{005}} - T_r)](8.34 \text{ lb/gal}) = \Sigma \text{BTU/day}$$

Qe = Effluent flow in gallons (each outfall)

Te = Effluent Temperature in °F (each outfall)

Tr = Upstream River Water Temperature in °F obtained from the Upper Hydro Station.

The daily recorded and calculated values shall be reported to the Department as an attachment to the Discharge Monitoring Reports (DMR's) for the months of June, July, August and September of each year.

EXAMPLE - DMR REPORTING FORM ATTACHMENT

Outfall #001

<u>Date</u>	<u>Qe (MGD)</u>	<u>Tr(°F)</u>	<u>Te(°F)</u>	<u>Heat (BTU's)</u>
6/1/05	30.83	67	91	6.17×10^9
6/2/05	26.64	67	91	5.33×10^9
6/3/05	24.63	69	90	4.31×10^9

Heat: $(30.83 \text{ MGD})(8.34 \text{ lbs/gal})(91^\circ\text{F} - 67^\circ\text{F}) = 6.17 \times 10^9 \text{ BTU's/day}$

Outfall #005

<u>Date</u>	<u>Qe (MGD)</u>	<u>Tr(°F)</u>	<u>Te(°F)</u>	<u>Heat (BTU's)</u>
6/1/05	22.35	67	91	4.47×10^9
6/2/05	26.64	67	91	5.33×10^9
6/3/05	24.40	69	90	4.27×10^9

The permittee shall continue to investigate water reuse projects within the mill and waste water treatment technology alternatives to reduce the thermal discharge to the Androscoggin River. **As an exhibit in the application for the next permit renewal**, the permittee shall submit a summary of the projects undertaken during the term of this permit to reduce the heat load discharged. The report shall list the individual projects and quantify the heat load (expressed in BTU's/day) removed as a result of said projects.

SPECIAL CONDITION

J. OPERATION & MAINTENANCE (O&M) PLAN

On or before June 1, 2006 [PCS Code 09699] the permittee shall update their comprehensive Operation & Maintenance (O&M) Plan for the waste water treatment facility. The plan shall provide a systematic approach by which the permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit.

By December 31 of each year, or within 90 days of any process changes or minor equipment upgrades, the permittee shall evaluate and modify the O&M Plan including site plan(s) and schematic(s) for the waste water treatment facility to ensure that it is up-to-date. The O&M Plan shall be kept on-site at all times and made available to Department and EPA personnel upon request.

Within 90 days of completion of new and or substantial upgrades of the waste water treatment facility, the permittee shall submit the updated pertinent sections of the O&M Plan to their Department inspector for review and comment.

K. GULF ISLAND POND OXYGEN INJECTION OPERATION

- a. **Beginning the effective date of this permit,** the RPC, either individually or in combination with Florida Power Light & Energy (FPLE), International Paper Company and Fraser Paper NH LLC shall operate the Gulf Island Pond Oxygenation Project (GIPOP) located at Upper Narrows in accordance with the following:

Begin GIPOP at Upper Narrows operation when the 3-day average temperature ⁽¹⁾ at the Turner Bridge is greater than 18°C in June.

Oxygen Injection Thresholds	% Normal Capacity	Oxygen Injection (lb/day)*
$Q^{(2)} > 3500$ cfs	Idle	8,000
$T < 24^{\circ}\text{C} \ \& \ 3,000 < Q \leq 3,500$	50%	36,500
$T < 24^{\circ}\text{C} \ \& \ 2,500 < Q \leq 3,000$	75%	54,750
$T < 24^{\circ}\text{C} \ \& \ Q < 2,500$	100%	73,000
$T \geq 24^{\circ}\text{C} \ \& \ Q \leq 3,500$	125%	91,000

* Or equivalent amount injected into the water column at an improved efficiency.

End GIPOP at Upper Narrows operation when 3-day average temperature at Turner Bridge is less than 21°C in September.

SPECIAL CONDITIONS

K. GULF ISLAND POND OXYGEN INJECTION OPERATION (cont'd)

The oxygenation system plenum shall be installed and available for operation on June 1 of each year or as soon thereafter as river flows recede to 5,000 cfs or less (to allow for safe installation of the system).

Once begun, GIPOP at Upper Narrows operation shall continue, with oxygen injected in accordance with the above requirements, until operation is ended in September, as specified above. Once ended, GIPOP at Upper Narrows operation shall not begin again until the following June, as specified above.

Footnotes:

- (1) All temperature measurements shall be obtained from the continuous temperature monitor at Turner Bridge and shall be expressed as a 3-day rolling average. Because the monitor records maximum and minimum temperatures for a given day, the daily average temperature will be defined as the arithmetic mean of the maximum and minimum temperatures for any given day. The 3-day rolling average is defined as the arithmetic mean of three daily average temperature values.
- (2) All flow measurements shall be obtained from the USGS gage at Rumford and shall be expressed as a 3-day rolling average. The flow gage does record average daily flows thus the 3-day rolling average is defined as the arithmetic mean of the three daily average flow values.

Failures shall be reported orally to the Department as soon as possible. Written notification shall be submitted to the Department within five days.

For the months of June, July, August and September of each calendar year, the permittee shall submit a spreadsheet (similar in format to the example below) to the Department as an attachment to the respective monthly Discharge Monitoring Report (DMR).

<u>Date</u>	<u>Temperature (°C)</u>	<u>River Flow (cfs)</u>	<u>Oxygen Injected (lbs/day)</u>
6/1	23°C	3,200 cfs	38,000 lbs/day
--	--	--	--
6/30	25°C	2,900 cfs	92,150 lbs/day

SPECIAL CONDITIONS

K. GULF ISLAND POND OXYGEN INJECTION OPERATION (cont'd)

b. Schedule of compliance

On or before December 31, 2006, [PCS Code 00199] the permittee shall independently or in conjunction with other parties, submit to the Department for review, a progress report on a scope of work and schedule for the construction of the oxygen injection system(s) or an equivalent measure(s) to comply with dissolved oxygen standards in GIP.

On or before December 31, 2007, [PCS Code 00701] the permittee shall independently or in conjunction with other parties, submit to the Department for review and approval, a scope of work and schedule for the construction of the oxygen injection system(s) or an equivalent measure(s) to comply with dissolved oxygen standards in GIP.

On or before December 31, 2008, [PCS Code 00299] the permittee shall independently or in conjunction with other parties, submit to the Department for review, a progress report on the construction of the oxygen injection system(s) or an equivalent measure(s) to comply with dissolved oxygen standards in GIP.

One or before December 31, 2009, [PCS Code 15599] the permittee shall independently or in conjunction with other parties, submit to the Department for review, an Operations and Maintenance (O&M) plan for the oxygen injection system(s) or equivalent measure(s) to comply with dissolved oxygen standards in GIP.

On or before June 1, 2010, the permittee shall be responsible for injecting up to 39,900 lbs/day of oxygen (38% of 105,000 lbs/day transferred at 33% efficiency assumed in modeling for the Upper Narrow diffuser) or an equivalent amount at an alternate efficiency at Upper Narrows (Androscoggin River Mile 31.4).

On or before June 1, 2010, [PCS Code 05699] the permittee shall install and have fully operational, an oxygen injection system located at Lower Narrows (Androscoggin River Mile 29.5) capable of injecting up to 9,573 lbs/day of oxygen at 33% efficiency or an equivalent amount at an alternate efficiency into the water column between June 1 and September 30th of each year or implement equivalent measure(s) to comply with dissolved oxygen standards in GIP.

The permittee may independently or in conjunction with other parties, submit to the Department for review and approval, a proposal for an alternate oxygen injection system(s) or an alternate oxygen injection plan(s) to meet the oxygen injection requirements recommended in the TMDL. The alternate system(s) must be installed and fully operational on or before June 1, 2010.

SPECIAL CONDITIONS

L. DIOXIN/FURAN CERTIFICATION

In lieu of 1/Month (40 CFR Part 430) monitoring of the bleach plant waste stream for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan), **by December 31 of each calendar year (PCS Code 95799)**, the permittee shall sample (1 Year) and report the results for said parameters and provide the Department with a certification stating:

- a. Elemental chlorine or hypochlorite was not used in the bleaching of pulp.
- b. The chlorine dioxide (ClO₂) generating plant has been operated in a manner which minimizes or eliminates byproduct elemental chlorine generation per the manufacturers/suppliers recommendations.
- c. Documented and verifiable purchasing procedures are in place for the procurement of defoamers or other additives without elevated levels of known dioxin precursors.
- d. Fundamental design changes to the ClO₂ stages of the bleach plant have been reported to the Department prior to implementation and said reports have explained the reason(s) for the change and any possible adverse consequences if any.

M. BIOLOGICAL MONITORING PROGRAM

The permittee is required to develop and implement an annual biological monitoring plan to monitor the bird species cited in paragraph M(1)(a) below. Except as specified below, the monitoring plan will remain in effect until the Department, after consultation with the USF&W and the State's IF&W, formally (in writing) relieves the permittee of their obligation to continue to carry out the plan.

1. **On or before November 1, 2005**, [PCS Code 22099] the permittee shall submit to the Department for review and approval, a biological monitoring plan to monitor the bird species listed in paragraph M(1)(a) below. The permittee shall consult with USFWS's Maine Field Office, the USEPA's Region I Maine State Ecosystem Office and the State of Maine Department of Inland Fish & Wildlife's (IF&W) Bangor Office when preparing the monitoring plan. The permittee must receive written approval of said plan from the Department prior to commencing the monitoring. The biological monitoring plan shall include the following items:
 - a. Bird samples (non-viable eggs and dead young sub-adults or adults) of bald eagles shall be collected when available from nests on the main stem of the Androscoggin River and on major tributaries within twenty five (25) miles of the permittee's mill and in reference/background areas. Samples obtained opportunistically for other fish-eating birds will be considered for analyses only in the absence of suitable bald eagle eggs or tissues.
 - b. The following environmental contaminants shall be measured in each sample: standard PCDD/F analysis, congener-specific PCB analysis, organochlorine pesticides analysis, and standard metals analysis including lead and mercury;

SPECIAL CONDITIONS

M. BIOLOGICAL MONITORING PROGRAM (cont'd)

- c. Aerial and ground based monitoring of eagle nests shall begin during eagle nest occupation followed by sequential visits to determine the day of egg laying. Aerial surveys shall resume once the eggs are expected to hatch. To identify dead chicks, subsequent flights shall continue until all chicks have fledged;
 - d. If encountered during sample collection, surviving eagle chicks (at least five weeks old) shall be banded; *(Note: sample collectors and analytical laboratories shall have the appropriate federal and state scientific and ESA possession permits.)*
 - e. Complete copies of sample analytical reports with QA/QC results will be made available promptly to the Department, USFWS, IF&W and the permittee if the reports are conducted by an entity other than the permittee.
2. **Beginning thirty (30) days after written approval from the Department of the biological monitoring plan**, the permittee shall commence implementation of said plan by conducting the biological sample collection and analysis as specified in paragraph M(1)(a-e) above.
3. **By December 31st of each calendar year (beginning December 31, 2006)** [PCS Code 90199, 90299, 90399, 90499] the permittee shall prepare and provide an annual report to the Department and entities identified in paragraph M(1) above, describing the results of the previous years biological monitoring activities.
4. Alternatively, the permittee may provide funding annually to the Maine IF&W and or USFWS to reimburse said agencies for the cost of surveys, bird sample collections, sample preparations, sample analysis and generation of the report as specified in paragraphs M(1)(a-e), M(2), and M(3) above .
5. The total cost to the permittee for the monitoring program shall not exceed an annual cap of \$10,000.
6. The permittee must meet annually with the Department and entities identified in paragraph M(1) above to discuss results of the previous year's monitoring, plans for the upcoming year's monitoring, the need for continuance of the program and to evaluate progress made by the permittee's mill to reduce loadings consistent with its technology based permit limitations. This special condition expires on the expiration date of the permit thereby limiting the monitoring to a five-year term. Any data/information collected during the term of this permit may be considered during the subsequent permit renewal.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN

1. SPECIALIZED DEFINITIONS.

- a. **Action Level:** A daily pollutant loading that when exceeded triggers investigative or corrective action. Mills determine action levels by a statistical analysis of six months of daily measurements collected at the mill. For example, the lower action level may be the 75th percentile of the running seven-day averages (that value exceeded by 25 percent of the running seven-day averages) and the upper action level may be the 90th percentile of the running seven-day averages (that value exceeded by 10 percent of the running seven-day averages).
- b. **Equipment Items in Spent Pulping Liquor, Soap, and Turpentine Service:** Any process vessel, storage tank, pumping system, evaporator, heat exchanger, recovery furnace or boiler, pipeline, valve, fitting, or other device that contains, processes, transports, or comes into contact with pulping liquor, soap, or turpentine. Sometimes referred to as "equipment items."
- c. **Immediate Process Area:** The location at the mill where pulping, screening, knotting, pulp washing, pulping liquor concentration, pulping liquor processing, and chemical recovery facilities are located, generally the battery limits of the aforementioned processes. "Immediate process area" includes spent pulping liquor storage and spill control tanks located at the mill, whether or not they are located in the immediate process area.
- d. **Intentional Diversion:** The planned removal of spent pulping liquor, soap, or turpentine from equipment items in spent pulping liquor, soap, or turpentine service by the mill for any purpose including, but not limited to, maintenance, grade changes, or process shutdowns.
- e. **Mill:** The owner or operator of a direct or indirect discharging pulp, paper, or paperboard manufacturing facility subject to this section.
- f. **Senior Technical Manager:** The person designated by the mill manager to review the BMP Plan. The senior technical manager shall be the chief engineer at the mill, the manager of pulping and chemical recovery operations, or other such responsible person designated by the mill manager who has knowledge of and responsibility for pulping and chemical recovery operations.
- g. **Soap:** The product of reaction between the alkali in kraft pulping liquor and fatty acid portions of the wood, which precipitate out when water is evaporated from the spent pulping liquor.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

- h. **Spent Pulping Liquor:** For kraft and soda mills "spent pulping liquor" means black liquor that is used, generated, stored, or processed at any point in the pulping and chemical recovery processes. For sulfite mills "spent pulping liquor" means any intermediate, final, or used chemical solution that is used, generated, stored, or processed at any point in the sulfite pulping and chemical recovery processes (e.g., ammonium-, calcium-, magnesium-, or sodium-based sulfite liquors).
- i. **Turpentine:** A mixture of terpenes, principally pinene, obtained by the steam distillation of pine gum recovered from the condensation of digester relief gases from the cooking of softwoods by the kraft pulping process. Sometimes referred to as sulfate turpentine.

2. REQUIREMENT TO IMPLEMENT BEST MANAGEMENT PRACTICES.

The permittee must implement the Best Management Practices (BMPs) specified in paragraphs 2(a) through 2(j) (below). BMPs must be developed according to best engineering practices and must be implemented in a manner that takes into account the specific circumstances at each mill. The BMPs are as follows:

- a. The permittee return spilled or diverted spent pulping liquors, soap, and turpentine to the process to the maximum extent practicable as determined by the mill, recover such materials outside the process, or discharge spilled or diverted material at a rate that does not disrupt the receiving wastewater treatment system.
- b. The permittee must establish a program to identify and repair leaking equipment items. This program must include:
 - (i) Regular visual inspections (e.g., once per day) of process areas with equipment items in spent pulping liquor, soap, and turpentine service;
 - (ii) Immediate repairs of leaking equipment items, when possible. Leaking equipment items that cannot be repaired during normal operations must be identified, temporary means for mitigating the leaks must be provided, and the leaking equipment items repaired during the next maintenance outage;
 - (iii) Identification of conditions under which production will be curtailed or halted to repair leaking equipment items or to prevent pulping liquor, soap, and turpentine leaks and spills; and
 - (iv) A means for tracking repairs over time to identify those equipment items where upgrade or replacement may be warranted based on frequency and severity of leaks, spills, or failures.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

- c. The permittee must operate continuous, automatic monitoring systems that the mill determines are necessary to detect and control leaks, spills, and intentional diversions of spent pulping liquor, soap, and turpentine. These monitoring systems should be integrated with the mill process control system and may include, e.g., high level monitors and alarms on storage tanks; process area conductivity (or pH) monitors and alarms; and process area sewer, process wastewater, and wastewater treatment plant conductivity (or pH) monitors and alarms.
- d. The permittee must establish a program of initial and refresher training of operators, maintenance personnel, and other technical and supervisory personnel who have responsibility for operating, maintaining, or supervising the operation and maintenance of equipment items in spent pulping liquor, soap, and turpentine service. The refresher training must be conducted at least annually and the training program must be documented.
- e. The permittee must prepare a brief report that evaluates each spill of spent pulping liquor, soap, or turpentine that is not contained at the immediate process area and any intentional diversion of spent pulping liquor, soap, or turpentine that is not contained at the immediate process area. The report must describe the equipment items involved, the circumstances leading to the incident, the effectiveness of the corrective actions taken to contain and recover the spill or intentional diversion, and plans to develop changes to equipment and operating and maintenance practices as necessary to prevent recurrence. Discussion of the reports must be included as part of the annual refresher training.
- f. The permittee must establish a program to review any planned modifications to the pulping and chemical recovery facilities and any construction activities in the pulping and chemical recovery areas before these activities commence. The purpose of such review is to prevent leaks and spills of spent pulping liquor, soap, and turpentine during the planned modifications, and to ensure that construction and supervisory personnel are aware of possible liquor diversions and of the requirement to prevent leaks and spills of spent pulping liquors, soap, and turpentine during construction.
- g. The permittee must install and maintain secondary containment (i.e., containment constructed of materials impervious to pulping liquors) for spent pulping liquor bulk storage tanks equivalent to the volume of the largest tank plus sufficient freeboard for precipitation. An annual tank integrity testing program, if coupled with other containment or diversion structures, may be substituted for secondary containment for spent pulping liquor bulk storage tanks.
- h. The permittee must install and maintain secondary containment for turpentine bulk storage tanks.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

- i. The permittee must install and maintain curbing, diking or other means of isolating soap and turpentine processing and loading areas from the wastewater treatment facilities.
- j. The mill must conduct wastewater monitoring to detect leaks and spills, to track the effectiveness of the BMPs, and to detect trends in spent pulping liquor losses. Such monitoring must be performed in accordance with paragraph 7.

3. AMENDMENT OF BMP PLAN.

- a. The permittee must amend its BMP Plan whenever there is a change in mill design, construction, operation, or maintenance that materially affects the potential for leaks or spills of spent pulping liquor, turpentine, or soap from the immediate process areas.
- b. **The permittee must complete a review and evaluation of the BMP Plan five years after the first BMP Plan is prepared and once every five years thereafter.** As a result of this review and evaluation, the permittee must amend the BMP Plan within three months of the review if the mill determines that any new or modified management practices and engineered controls are necessary to reduce significantly the likelihood of spent pulping liquor, soap, and turpentine leaks, spills, or intentional diversions from the immediate process areas, including a schedule for implementation of such practices and controls.

4. REVIEW AND CERTIFICATION OF BMP PLAN.

The BMP Plan, and any amendments, must be reviewed by the senior technical manager at the mill and approved and signed by the mill manager. Any person signing the BMP Plan or its amendments must certify to the Permitting Authority under penalty of law that the BMP Plan (or its amendments) has been prepared in accordance with good engineering practices and in accordance with this regulation. The mill is not required to obtain approval from the Permitting Authority of the BMP Plan or any amendments.

5. RECORD KEEPING REQUIREMENTS

- a. The permittee must maintain on its premises a complete copy of the current BMP Plan and the records specified in paragraph 5(b) (below) and must make such BMP Plan and records available to the Permitting Authority or his or her designee for review upon request.
- b. The mill must maintain the following records for three years from the date they are created:

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

- (i) Records tracking the repairs performed in accordance with the repair program described in paragraph 2(b);
- (ii) Records of initial and refresher training conducted in accordance with paragraph 2(d);
- (iii) Reports prepared in accordance with paragraph 2(e) of this section; and
- (iv) Records of monitoring required by paragraphs 2(j) and 7.

6. ESTABLISHMENT OF WASTEWATER TREATMENT SYSTEM INFLUENT ACTION LEVELS.

- a. The permittee must conduct a monitoring program, described in paragraph 6(b), for the purpose of defining wastewater treatment system influent characteristics (or action levels), described in paragraph 6(c), that will trigger requirements to initiate investigations on BMP effectiveness and to take corrective action.
- b. The permittee must employ the following procedures in order to develop the required action levels:
 - (i) Monitoring parameters. The permittee must collect 24-hour composite samples and analyze the samples for a measure of organic content (e.g., Chemical Oxygen Demand (COD) or Total Organic Carbon (TOC)). Alternatively, the permittee may use a measure related to spent pulping liquor losses measured continuously and averaged over 24 hours (e.g., specific conductivity or color).
 - (ii) Monitoring locations. For direct dischargers, monitoring must be conducted at the point influent enters the wastewater treatment system. For indirect dischargers monitoring must be conducted at the point of discharge to the POTW. For the purposes of this requirement, the permittee may select alternate monitoring point(s) in order to isolate possible sources of spent pulping liquor, soap, or turpentine from other possible sources of organic wastewaters that are tributary to the wastewater treatment facilities (e.g., bleach plants, paper machines and secondary fiber operations).
- c. The permittee must complete an initial six-month monitoring program using the procedures specified in paragraph 6(b) and must establish initial action levels based on the results of that program. A wastewater treatment influent action level is a statistically determined pollutant loading determined by a statistical analysis of six months of daily measurements. The action levels must consist of a lower action level, which if exceeded will trigger the investigation requirements described in

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

- paragraph 7, and an upper action level, which if exceeded will trigger the corrective action requirements described in paragraph 7.
- d. The permittee must complete a second six-month monitoring program using the procedures specified in paragraph G(2) of this section and must establish revised action levels based on the results of that program. The initial action levels shall remain in effect until replaced by revised action levels.
 - e. Action levels developed under this paragraph must be revised using six months of monitoring data after any change in mill design, construction, operation, or maintenance that materially affects the potential for leaks or spills of spent pulping liquor, soap, or turpentine from the immediate process areas.

7. MONITORING, CORRECTIVE ACTION, AND REPORTING REQUIREMENTS.

- a. The permittee must conduct daily monitoring of the influent to the wastewater treatment system in accordance with the procedures described in paragraph 6(b) for the purpose of detecting leaks and spills, tracking the effectiveness of the BMPs, and detecting trends in spent pulping liquor losses.
- b. Whenever monitoring results exceed the lower action level for the period of time specified in the BMP Plan, the permittee must conduct an investigation to determine the cause of such exceedence. Whenever monitoring results exceed the upper action level for the period of time specified in the BMP Plan, the permittee must complete corrective action to bring the wastewater treatment system influent mass loading below the lower action level as soon as practicable.
- c. Although exceedence of the action levels will not constitute violations of the permit, failure to take the actions required by paragraph 7(b) as soon as practicable will be a violation.
- d. The permittee must report to the Permitting Authority the results of the daily monitoring conducted pursuant to paragraph 7(a). Such reports must include a summary of the monitoring results, the number and dates of exceedence of the applicable action levels, and brief descriptions of any corrective actions taken to respond to such exceedence. **Submission of such reports shall be at least 1/year with the December DMR [PCS Code 34599].**

SPECIAL CONDITIONS

O. AMBIENT WATER QUALITY MONITORING

By February 1st of each year (beginning February 1, 2006), [PCS Code 22099] the permittee shall independently or in conjunction with other parties, submit an updated ambient water quality monitoring plan for that year to the Department for review and approval, with or without conditions, if the monitoring plan is different than specified in this section.

Between June 1 and September 30 of each year (beginning June 1, 2006) [PCS Code 90101] the permittee shall independently or in conjunction with other parties participate in ambient water quality monitoring of Gulf Island Pond and/or designated segments of the Androscoggin River at a frequency of 1/Week. There must be at least 72 hrs between sampling events. Samples for total phosphorus, ortho-phosphorus, chlorophyll *a*, secchi disc readings and dissolved oxygen/temperature profiles at one-meter increments and physical observations shall be taken at five (5) sampling stations once per sampling event. The sampling stations are designated as Twin Bridges, Upper Narrows, Lower Narrows, Gulf Island Pond 4 and Gulf Island Dam (deep hole). Sampling procedures must be consistent with the protocols established in a document entitled, Androscoggin River & Gulf Island Pond Water Quality Monitoring Plan 2004, Acheron, May 2004 or the most current revisions to said plan approved by the Department.

By November 30th of each year (beginning November 30, 2006), [PCS Code 90199, 90299, 90399, 90499] the permittee shall independently or in conjunction with other parties, submit a written report to the Department summarizing the results of the monitoring for that year. The report shall include, but not be limited to, all the field data and any pertinent field observations (algal blooms in particular), a statistical analysis of the field data and interpretation and/or conclusions drawn from the analysis and/or data and any recommendations for revisions to the monitoring plan (if appropriate) for the following year.

P. FISH ADVISORY PROGRAM

The permittee is required to participate in the State's most current annual Fish Advisory Program (administered by the Department) pursuant to Maine law, 38 M.R.S.A., §420-A.

SPECIAL CONDITIONS

Q. SCHEDULE OF COMPLIANCE

1. **On or before June 1, 2006, [PCS Code 34099]** the permittee shall submit to the Department for review and approval, with or without conditions, the plan for a study regarding the ability of mill's waste water treatment facility to successfully remove BOD and TSS in a low phosphorus environment. The plan must include the methods for the control of phosphorus and the monitoring of the process and biological health of the wastewater treatment plant's removal of BOD & TSS. The report shall include, but not be limited to, a scope of work and schedule to implement phosphorus controls and improvements, recommendations, process control measures, and the key metrics that will be monitored to determine the effectiveness of the wastewater treatment plant in a low phosphorus environment. Particular emphasis will be given to the control of phosphorus and the impact of low phosphorus on the removal efficiency and effluent performance of BOD & TSS. The study design and duration shall be sufficient to note normal daily operations and be comprehensive enough to note any changes in the frequency and nature of upset conditions that affect BOD & TSS treatment.
2. **On or before June 1, 2008, [PCS Code 95999]** the permittee shall submit to the Department for review and approval, with or without conditions, a report evaluating the results of the study plan described in Q.1. above. The report shall include, but not be limited to, an evaluation of the plant's phosphorus performance and the BOD & TSS treatment performance in a low phosphorus environment and shall include a scope of work and schedule to implement improvements, recommendations, process control measures or other like measures found necessary and appropriate for compliance with the permit license limits. All such measures and will be completed as soon as possible.
3. **On or before December 1, 2006, [PCS Code 00199] December 1, 2007, [PCS Code 00299] December 1, 2008, [PCS Code 00399] and December 1, 2009 [PCS Code 00499]** the permittee shall submit to the Department, progress reports describing the current performance of the wastewater treatment system, manufacturing and treatment changes occurring in the previous 12-month period, compliance with the terms of this schedule of compliance, improvements proposed for the following 12-month period and the expected results from those improvements to come into compliance with interim and final total and ortho-phosphorus limitations and final TSS limitations.
4. **As soon as possible, but in no event later than June 1, 2010, [PCS Code 05699]** the permittee shall be in compliance with applicable limitations for TSS, total phosphorus, ortho-phosphorus and oxygen injection requirements.

SPECIAL CONDITIONS

Q. SCHEDULE OF COMPLIANCE (cont'd)

5. At any time during the term of this schedule of compliance, and based on the findings of aforementioned studies/evaluations, effluent monitoring and other information, the permittee may petition the Department to suspend further actions. If the Department finds that work done to that point reasonably ensures that permittee is in compliance with any or all final effluent limit(s) pursuant to Special Condition A, *Effluent Limitations and Monitoring Requirements*, the Department will authorize the Department to suspend further work related to the pollutant(s), provided the permittee remains in compliance with the final effluent limit(s). Nothing in this paragraph may be construed to extend or modify the compliance dates contained herein, or in any way alter final effluent limits. Specifically, suspension of work shall not be considered as a basis for extending the time for compliance with final effluent limits.

R. REOPENING OF PERMIT FOR MODIFICATIONS

Upon evaluation of the tests results specified by the Special Conditions of this permitting action, new site specific information, or any other pertinent test results or information obtained during the term of this permit, the Department may, at anytime and with notice to the permittee, modify this permit to: 1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded; (2) require additional monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information considering ambient water quality conditions.

S. SEVERABILITY

In the event that any provision, or part thereof, of this permit is declared to be unlawful by a reviewing court, the remainder of the permit shall remaining in full force and effect, and shall be construed and enforced in all aspects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

**MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
MAINE WASTE DISCHARGE LICENSE**

FACT SHEET

Date: **September 20, 2005**
Original Date: **May 13, 2005**

PERMIT NUMBER: **ME0002054**
LICENSE NUMBER: **W000955-5N-G-R**

NAME AND ADDRESS OF APPLICANT:

**RUMFORD PAPER COMPANY
35 Hartford Street
Rumford, Maine 04276**

COUNTY: **Oxford County**

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

**Rumford Mill
35 Hartford Street
Rumford, Maine 04276**

RECEIVING WATER AND CLASSIFICATION: **Androscoggin River/ Class C**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **Michael Sinclair, Env. Eng.
(207) 369-2302**

1. APPLICATION SUMMARY

The RPC has filed an application with the Department to renew State Waste Discharge License (WDL) #W000955-44-C-R that was issued on June 1, 1995. It is noted the 6/1/95 WDL was subsequently modified on October 18, 1998, to incorporate new limitations for color, dioxin and furan and modified again on June 10, 1999, to incorporate the terms and conditions of a new operational plan for the Gulf Island Pond Oxygenation Project (GIPOP). All three licensing actions expired on June 1, 2000.

The RPC mill in Rumford, Maine manufactures bleached market kraft pulp and fine coated paper. The RPC has applied to the Department for the issuance of a combination Maine Pollutant Discharge Elimination System (MEPDES) permit and WDL to discharge up to a monthly average flow of 34 million gallons per day (MGD) of treated process waste waters, treated spills of sanitary waste waters, treated landfill leachate, treated stormwater runoff and general housekeeping waste waters associated with a kraft pulp and papermaking facility from a single outfall to the Androscoggin River in Rumford, Maine. In addition to the aforementioned waste waters discharged, this permit authorizes

1. APPLICATION SUMMARY (cont'd)

treated discharges associated with or resulting from essential maintenance, regularly scheduled maintenance during start-up and shutdown, spills and release (whether anticipated or unanticipated) from anywhere in the permitted facility. The 6/1/95 WDL also authorized the RPC to discharge up to 47 MGD of cooling waters and cooling tower blowdown to the river via four additional outfalls. See Attachment A of this Fact Sheet for an aerial photograph showing a layout of the mill complex. The RPC also maintains a multi-sector permit from the EPA for ten storm water outfalls. The mill produces an average of 1,842 tons per day (TPD) of fine coated paper from 1,252 tons/day of unbleached kraft pulp and 118 tons/day of groundwood pulp and produces 216 tons/day of bleached market pulp. Though pulp and paper production is up and down based on market conditions, these values are representative of normal production and are therefore being used to derive applicable production based technology limitations in this permitting action.

2. PERMIT SUMMARY

- a. Regulatory - On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) program in Maine. From that point forward, the program has been referred to as the MEPDES program and will utilize a permit number of #ME0002054 as a reference number for the RPC's MEPDES permit. It is noted the effective NPDES permits issued by the EPA for the pulp and papermaking facility on March 30, 1992, (#ME0002054) and for the co-generation facility on September 26, 1986, (#ME0023264) will be replaced by the MEPDES permit upon the effective date of this permit and all terms and conditions of the NPDES permits will be null and void.
- b. Terms and Conditions - This permit is significantly different than the effective NPDES permits issued by the EPA in 1992 and 1996 and the effective WDL issued by the State of Maine in 1995 (subsequently modified in 1998 and 1999) due in part to new regulations promulgated by the EPA in April of 1998 for the pulp and paper industry. The new regulation may be found at 40 Code of Federal Regulation (CFR) Part 430 and is often referred to as the "Cluster Rule."

This permit is carrying forward the following terms and conditions from WDL #W000955-44-C-R dated June 1, 1995, WDL #W000955-51-A-N dated February 27, 1996, and modifications WDL #W000955-5N-D-M dated October 18, 1998 WDL #W000955-5N-E-M dated June 10, 1999, and WDL #W000955-5N-F-M dated July 23, 1999 as follows:

1. The monthly average flow limitation of 34.0 MGD for Outfall #001 and the daily maximum flow limitation of 30 MGD for Outfall #005.
2. The monthly average flow limitation of 17.0 MGD for Outfalls #002, #003 and #004 collectively.

2. PERMIT SUMMARY (cont'd)

3. The daily maximum temperature limits for Outfalls #001 - #005.
4. The technology based pH range limitation for Outfall #001.
5. The quarterly average technology based color limit of 150 lbs/ton of unbleached pulp produced for Outfall #001.
6. The daily maximum technology based concentration limit of <10 pg/L for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan) at the end of the bleach plant, Outfall #100, an internal waste stream for the mill.
7. The annual testing requirement for whole effluent toxicity (WET) and chemical specific (priority pollutant) testing for Outfall #001.
8. The thermal mixing zone.
9. The maximum and average interim limits for mercury.

The terms and conditions are different from WDL #W000955-44-C-R dated June 1, 1995, WDL #W000955-51-A-N dated February 27, 1996, and modifications WDL #W000955-5N-D-M dated October 18, 1998, WDL #W000955-5N-E-M dated June 10, 1999, and WDL #W000955-5N-F-M dated July 23, 1999, in that this permit:

10. Establishes more stringent seasonal limitations for biochemical oxygen demand (BOD) and total suspended solids (TSS) based on the recommendations in the Department's May 2005 final total maximum daily load (TMDL)
11. Establishes monthly average and daily maximum technology based mass limits for adsorbable organic halogens (AOX) for Outfall #001.
12. Establishes revised pH range limitations for Outfalls #002 - #005.
13. Establishes more stringent daily maximum thermal load limitation for Outfalls #001 - #005 collectively.
14. Establishes daily maximum technology based concentration limits for 12 chlorinated phenolic compounds for the bleach plant, Outfall #100.
15. Establishes monthly average and daily maximum technology based mass limits for chloroform for the bleach plant, Outfall #100.
16. Establishes monthly average water quality based mass limitations for total phosphorus and ortho-phosphorus based on the recommendations in the Department's May 2005 final TMDL.

2. PERMIT SUMMARY (cont'd)

17. Establishes a new regime for oxygen injection from the Gulf Island Pond Oxygenation (GIPOP) system at Upper Narrows.
 18. Establishes a requirement to inject oxygen into the Androscoggin River at Lower Narrows.
 19. Establishes a five-year schedule of compliance for final water quality based mass limitations for TSS, total phosphorus and ortho-phosphorus and a five-year schedule of compliance for the additional oxygen injection requirements.
 20. Requires the permittee to develop, implement, and periodically update a Best Management Plan (BMP) for spent pulping liquors from the mill operations.
 21. Establishes a requirement for the permittee to maintain and annually update an Operations and Maintenance (O&M) plan for the waste water treatment facility.
 22. Establishes a requirement to participate in annual ambient water quality monitoring of Gulf Island Pond.
- c. History: - The most recent significant and relevant regulatory actions for the RPC's Rumford mill are as follows:

September 26, 1986 – The EPA issued NPDES permit #ME0023264 for a five-year term. The permit regulated the discharge of non-contact cooling water from the Boise Cascade Corporation's co-generation facility.

March 30, 1992 – The EPA issued a renewal of NPDES permit #ME0002054 for a five-year term. The permit was issued in the name of the Boise Cascade Corporation, former owner and operator of the Rumford Mill.

April 30, 1992 - The Boise Cascade Corporation appealed the EPA's March 30, 1992 permit and requested an evidentiary hearing in regard to limitations and monitoring requirements for dioxin, furan, color, AOX, pH, whole effluent toxicity, fish analysis, and a narrative condition regarding PCB discharges contained in the permit. EPA neither denied nor granted such a hearing and thus the permit never became effective and the permit and the appeal have since expired. It is noted that the EPA and Boise Cascade reached a settlement agreement on September 28, 1994 to address the appeal but the EPA never formally signed off on the agreement. In order to resolve the appeal that was pending before the EPA's Environmental Appeals Board and to ensure the contested conditions of the NPDES permit remained in abeyance until the State of Maine issued a MEPDES permit, the EPA withdrew the contested permit conditions pursuant to federal regulation, 40 CFR Part 124.19(d). The remaining terms and conditions of 4/30/92 NPDES permit remained in effect until the MEPDES permit is issued by the State. The Order to accept the removal of the contested permit conditions from the 1992 NPDES permit was accepted by the federal Environmental Appeals Board judge on May 30, 2001.)

2. PERMIT SUMMARY (cont'd)

June 1, 1995 – The Department issued WDL #W000955-44-C-R for a five-year term. As with the NPDES permit issued by the EPA, the WDL was issued in the name of the Boise Cascade Corporation. It is noted this WDL action incorporated limitations and monitoring requirements for the non-contact cooling water discharge(s) from the co-generation facility.

February 27, 1996 - The Department issued WDL #W00955-51-A-N that established a thermal mixing zone in the Androscoggin River for the discharges from the Rumford mill.

April 1998 – The EPA promulgated new National Effluent Guidelines (NEGS) for a portion of the pulp and paper industry. The NEG's applicable to the Rumford mill are found at 40 CFR Part 430, commonly referred to as the Cluster Rule.

October 18, 1998 - The Department issued WDL modification #W000955-5N-D-M to incorporate limitations for dioxin, furan and color.

June 10, 1999 - The Department issued WDL modification #W000955-5N-E-M to incorporate the terms and conditions of a new operational plan for the Gulf Island Pond Oxygenation Project (GIPOP).

July 23, 1999 – The Department issued WDL modification #W000955-5N-F-M which established a schedule of compliance and interim quarterly average limits for color.

January 12, 1999 – The permittee submitted a timely application to the Department to renew the 6/1/95 WDL.

May 23, 2000 – Pursuant to Maine law, 38 M.R.S.A. §420 and Department rule, 06-096 CMR Chapter 519, *Interim Effluent Limitations and Controls for the Discharge of Mercury*, the Department issued a *Notice of Interim Limits for the Discharge of Mercury* to the permittee thereby administratively modifying WDL # W000955-44-C-R by establishing interim monthly average and daily maximum effluent concentration limits of 35.8 parts per trillion (ppt) and 53.7 ppt, respectively, and a minimum monitoring frequency requirement of four tests per year for mercury.

January 12, 2001 - The Department received authorization from the EPA to administer the NPDES program in Maine.

May 2005 – The Department finalized a TMDL for portions of the Androscoggin River above the Gulf Island Pond Dam.

July 18, 2005 – The EPA formally approved the May 2005 TMDL prepared by the Department.

2. PERMIT SUMMARY (cont'd)

- d. Source Description: The Rumford Mill is an integrated pulp and paper manufacturing plant, owned and operated by the Rumford Paper Company. Operations at the mill include a full range of manufacturing and supporting activities designed to produce a variety of pulp and paper products. The manufacturing processes that generate wastewater in the Rumford Mill complex generally include: the pulp mill and bleach plant area, the paper machines, and the steam plant and utilities area.

The RPC's Rumford Mill pulp mill produces groundwood pulp (also referred to as "mechanical pulp") and bleached softwood and hardwood kraft pulp. The chemical pulp mill operations include separate Line A and Line B pulp bleaching process lines, as well as a chemical preparation process used to produce chemicals used in the bleaching processes. Groundwood pulp is produced in a separate mechanical pulping process line. Pulping operations consist of a continuous Kamyr digester producing softwood kraft pulp, and ten batch digesters producing hardwood kraft pulp. Four of the batch digesters have the capability to process either softwood or hardwood pulp. The kraft pulp is bleached in a three stage $D_0 E_{OP} D_1$ bleach plant utilizing chlorine dioxide and hydrogen peroxide for bleaching, with separate bleaching lines for softwood and hardwood pulp. The Rumford Mill has been elemental chlorine free (ECF) since February 1997.

The paper mill process area consists of all the equipment and operations used to convert pulp to paper. More specifically, this includes stock (pulp) preparation, additives preparation, coating preparation, starch handling, finishing, storage, and five paper machines (R-9, R-10, R-11, R-12, and R-15). The pulp used in the production of paper consists primarily of the bleached kraft pulp produced in the pulp mill; for certain applications, pulp obtained from outside suppliers (including recycled fiber) is employed as well. Of the five paper machines, R-10, R-11, R-12, and R-15 produce coated papers, while R-9 operates as a pulp dryer to produce market pulp.

The primary sources of waste water and pollutants in these processes are digester blow condensing, pulp washing, screening and thickening. The sources of wastewater in the bleach plant are thickening and washing.

Water system flows and mill water usage is summarized in the following section. Most mill water comes from the Androscoggin and Swift Rivers.

The mill has 6 water systems as follows:

- #1 water system provides 12 - 15 MGD of sand filtered/chlorinated water to the mill as process makeup water.
- #2 water system provides 15 - 20 MGD of filtered water to the Pulp mill/ Bleach plant. It is also used for seal water.

2. PERMIT SUMMARY (cont'd)

- Old #3 water system supplies 6-9 MGD of filtered water for cooling water, and is the water discharged from the thermal sewers.
- New #3 water supplies 14 to 30 MGD of filtered water for cooling purposes in the recovery boiler, #15 paper machine, and R-8 ClO₂ plant. Some of this water is also discharged from the thermal sewers.
- Cogeneration water supplies 20 to 35 MGD of cooling water strictly to Cogeneration and is closed-loop.
- 0.25 MGD of potable water is supplied by the Town of Rumford via hard pipe. Carrabassett Valley supplies bottled water for drinking.

Some of these water systems handle water that is recycled from other water systems in the mill. Not all of the nominal capacity of each water system is for water withdrawal.

Sources contributing to process wastewater include pulp and paper manufacturing operations, electric power generation, landfill leachate, and stormwater. Sanitary sewage is transported off-site and treated at the Rumford-Mexico Sewerage District. Process wastewater is pumped to the mill's effluent treatment plant where it is treated prior to discharge. A schematic showing individual process wastewater streams is attached to this Fact Sheet. Non-contact cooling water and strainer/filter backwash water is discharged untreated. It is estimated that approximately 1.5 MGD of water is lost to the atmosphere and/or contained in final products.

The utilities operation encompasses the area associated with #3 Power Boiler and #5 Power Boiler, which provide steam and electric power for mill operations. Utilities operations include the combustion, feedwater treatment, fuel oil storage tanks, and a steam turbine generator associated with these power boilers.

The Cogeneration Plant encompasses the operational area associated with #6 Boiler and #7 Boiler, which provide steam and electric power for mill operations. Cogeneration operations include the combustion, feedwater treatment, and steam generation systems associated with these boilers, as well as multi-fuel handling and storage equipment, ash handling and storage equipment, three cooling towers, and a steam turbine generator.

The chemical recovery operation encompasses the operational area associated with C-Recovery boiler, steam stripper, the lime kiln, and causticizing.

Sources of wastewater from the utilities include the recovery area, which incurs waste discharges from the evaporator system. Sources of water and solids losses are from the scrubber systems of #3 and #5 boilers, the scrubber for the lime kiln, and purge from the Cogeneration and other boiler feedwater systems.

2. PERMIT SUMMARY (cont'd)

Outfall #001A & Outfall #001B

Treated process wastewater is discharged from Outfall 001A into the Androscoggin River via a 36-inch steel pipe. The top-of-pipe outfall elevation is approximately 414 feet above mean sea level (MSL) and is located between the lower hydroelectric station tailrace discharge points. There is no diffuser, mixer, or similar structure associated with this outfall. During periods of high flow in the river, most commonly occurring in the spring and fall, discharges from Outfall 001A are hydraulically limited. As a result, the waste water treatment facility experiences hydraulic limitations and best practicable treatment of the waste water is jeopardized. During such times, the facility discharges from Outfall 001B, a 36-inch diameter pipe located slightly upstream of Outfall 001A. The discharges from Outfall 001B receive the same degree of treatment as discharges from Outfall 001A. There is no diffuser, mixer, or similar structure associated with this outfall.

Outfall 002

Outfall #002 consists of non-contact cooling water from heat exchangers located in the pulp mill and paper mill (north end) and is discharged into the Androscoggin River via a 12-inch diameter stainless steel pipe. The top-of-pipe elevation is approximately 413 feet MSL and the summer low water level at this point is approximately 412 feet MSL. There is no diffuser, mixer, or similar structure associated with this outfall.

Outfall 003

Outfall #003 consists of non-contact cooling water from the recovery boiler condenser system and discharges into the Androscoggin River via a 24-inch diameter reinforced concrete pipe. The top-of-pipe elevation is approximately 445 feet MSL and the summer low water level is approximately 417 feet MSL. There is no diffuser, mixer, or similar structure associated with this outfall.

Outfall 004

Outfall #004 consists of non-contact cooling water from heat exchangers located at R-15 paper machine and the pulp dryer (R-9) is discharged into the Androscoggin River via a 24-inch diameter reinforced concrete pipe. (Non-contact cooling water from heat exchangers located at specialty paper machines 7, 8, and 9 were directed to this outfall until December 1999, when these machines were subsequently shutdown permanently. R-9 was then converted to a pulp dryer.) The top-of-pipe elevation is approximately 418 feet MSL and the summer low river level is approximately 412 feet MSL. There is no diffuser, mixer, or similar structure associated with this outfall.

2. PERMIT SUMMARY (cont'd)

Outfall 005

Outfall #005 consists of non-contact cooling water from the cogeneration plant condenser enters the Androscoggin River via the penstocks which exit the Rumford Falls Power Company lower hydroelectric station. The two steel penstocks are 12 feet in diameter and the top-of-pipe elevation is approximately 416 feet MSL. The summer river levels at this point are approximately 420 feet MSL. There is no diffuser, mixer, or similar structure associated with this outfall.

Outfall 006

Outfall #006 consists of backwash water from the cogeneration plant's Kinney strainers (filtered river water) is discharged into the Androscoggin River via an 18-inch diameter reinforced concrete pipe. The top-of-pipe elevation is approximately 413 feet MSL and the summertime river elevation is approximately 414 feet MSL. There is no diffuser, mixer, or similar structure associated with this outfall.

- e. Waste Water Treatment - The waste water treatment facility for the mill receives and treats process wastewater from the Rumford Mill, leachate from Farrington Mountain Landfill, and stormwater from around the mill site. The effluent treatment process at the Rumford Mill uses activated sludge and includes screening, primary clarification, sludge dewatering and disposal, aeration, and secondary clarification. Simplified process flow diagrams of the effluent treatment process are included with this application as Attachment C of this Fact Sheet.

1. *Wastewater Collection, Screening, and Pumping*

The pulp and paper mill sewers are combined in an interceptor sewer which discharges to a collection box located at the riverbank. From the collection box, the wastewater flows into the bar screen room and through the bar screen. The screen is comprised of parallel bars placed on a vertical incline to the direction of flow and spaced at one-inch intervals. Coarse solids are caught on the bars and, after removal by the mechanical scrapers, are discharged to an outside pad for storage prior to landfill disposal. A second, smaller bar screen is also operated in conjunction with the primary screen.

After the screen, the wastewater passes through a rectangular mix tank. At this point, lime can be added to the wastewater for pH control, prior to the tailraces. After the mix tank, wastewater flows into two interconnected tailrace tunnels which run underneath the mill basement. These tunnels are approximately 300 feet long and 10 feet wide, with a water depth of 6 to 8 feet (maximum depth is approximately 18 feet). They serve as a large sump for the three lift pumps. The pumps are Morris vertical centrifugal pumps driven by 400 hp electric motors. The motors are controlled by variable frequency drives which allows the pump to

2. PERMIT SUMMARY (cont'd)

speed up or slow down depending on tailrace level. At 100% speed and under good conditions, each lift pump is capable of pumping 17 to 20 MGD (11,800 to 13,600 GPM). The pumps are located in the mill basement, with suction piping extended 16 feet into the tunnels. The pumps are primed with a common automatic vacuum priming system. A level controller controls pump operation by regulating the pump speed or the number of pumps in use based on the tunnel level. Mill effluent then flows through a 36-inch FRP line approximately one-third of a mile to the former disk screen building, located beside the primary clarifier. At this point, 93% sulfuric acid can be pumped into the force main for pH adjustment as necessary. Wastewater then flows to the primary clarifier centerwell. The disc screen can be bypassed by manipulating valves.

The wastewater pH at the lift pump is monitored continuously.

2. *Primary Clarifier*

Waste streams from the pulp mill, paper mill, and utilities area are pumped to a single primary clarifier. The clarifier is 220 feet in diameter and has a total capacity of 4.3 million gallons for a detention time of about 3.5 hours. Demonstrated total suspended solids and BOD removal efficiencies are 75% and 25% respectively. The drive assembly is comprised of a 5 HP motor and reducer for each of the two wheels which ride along the rim of the clarifier. A snow plow and manual salt application keeps the rim free of snow and ice during the winter. Helical rakes plow the sludge in toward the center wall of the clarifier. The rakes are designed to ride up over hard, dense areas and gradually work through compacted sludge. A sludge depth target of 2 feet is desired for optimum sludge consistency and dewatering properties.

Settled sludge is withdrawn from the clarifier centerwell through three 8-inch suction lines to one of three 60-HP, 700-gpm variable speed Moyno progressive cavity pumps. The three pumps manifold in to either of the two 6-inch discharge lines which extend underground to the blend tanks in the control building. The speed of the Moyno pumps is controlled by the treatment plant operator in the filter building. The Moyno pumps can be back-flushed with high pressure water when necessary.

3. *Blend Tanks*

Mixing of primary and secondary waste occurs in the blend tanks, which also provide surge capacity between the Moyno pumps and the dewatering equipment. The Moyno pumps can be valved to allow them to pump to either blend tank. The blend tanks, equipped with 10-HP agitators, also mix the material coming from the clarifier bottom, dampening the effect of localized pockets in the clarifier. Sludge is supplied to the dewatering equipment by three Vaughn 30-HP, variable speed "chopper" pumps. These pumps draw from a manifold connecting the two blend tanks. The manifold is valved to allow multiple pumping combinations from either or both tanks.

2. PERMIT SUMMARY (cont'd)

4. *Sludge Dewatering*

Sludge dewatering is accomplished by three Andritz gravity tables and screw presses. Polymer is added to the process as a flocculation aid. The polymer is purchased as a dry material in 1,800-lb bags. It is then mixed down to approximately a 3% solution and held in an 8,700-gallon storage tank. The polymer is further diluted to 0.3% during the transfer to the mix and use tanks. The 0.3% polymer is then supplied to the system by three variable speed pumps. The polymer is added to each sludge line prior to a Venturi mixer. The Venturi mixer provides mixing of the polymer and sludge before reaching the gravity table headbox. Polymer dilution and polymer to sludge ratios are maintained by flow ratio controllers that control the polymer pump speeds and dilution water control valves.

Sludge from the blend tanks is pumped to a variable speed gravity table. The sludge enters at a consistency of 3 to 5 % solids and is dewatered to approximately 10% solids.

The partially dewatered sludge drops through a chute into the headbox of the screw press. Each variable speed screw press has a production capacity of 40 tons of dry sludge per day. Constant level in the headbox is maintained by a level controller that dictates the speed of the sludge “chopper” pumps. Steam is added to the center of the screw to aid in dewatering. Sludge is dewatered to approximately 50% solids and is discharged onto individual belt conveyors that carry the sludge to the diked concrete holding pad.

5. *Sludge Disposal*

Approximately 75% of the dewatered sludge generated is then burned to further reduce sludge volume. Dewatered sludge is mixed with biomass from the mill's debarking operation and fed to the two cogeneration boilers. Both dewatered sludge and boiler ash are trucked to the landfill by an independent contractor. The landfill site is located at Farrington Mountain, approximately three miles south of the mill. Leachate from the landfill is collected and held in two ponds at the south end of the site. From here, the leachate is pumped back to the mill through an underground pipeline, where it is treated in the effluent treatment plant.

6. *Aeration Basin*

The primary clarifier overflow empties into an outfall box where urea and phosphoric acid are added as nutrients. From there, the overflow travels by gravity to a mix box where recycle sludge is mixed with primary sludge. From this point, the effluent is channeled into four 24-inch FRP pipelines into two discharge points within each of the two aeration basins. The combined capacity of the basins is 8.85 million gallons. Liquid depth varies between

2. PERMIT SUMMARY (cont'd)

12.0 to 12.5 feet. Air is supplied through six 500-HP centrifugal blowers (each blower has a capacity of 8,500 standard cubic feet per minute (scfm)) and four 350-HP positive displacement blowers (each blower has a capacity of 6000 scfm). The average continuous air flow of these two independent systems is approximately 50,000 scfm.

During May of 1992, a major modification was performed on all the laterals in each of the aeration basins. The ½" hole under each of the Kinecs diffusers was plugged and approximately 11,200 3/8" holes were drilled in the existing laterals at 1.75 foot intervals.

Aeration is also supplied to the headbox of the final clarifiers via 30 laterals which supply approximately 1000 scfm of air. The dissolved oxygen (D.O.) target value for the headbox is 1.0 ppm. The mixed liquor volatile solids concentration is held between 1800 and 2800 ppm depending on F/M ratio and SVI.

Recycle sludge is transported from the secondary clarifiers to the mix box where it is mixed with primary sludge utilizing a combination of four 75-HP recycle sludge pumps. Recycle flow rate is maintained depending on incoming flow, mixed liquor concentration (mg/l), current secondary sludge inventory, and microbiology. Waste sludge is withdrawn from the recycle sludge line and pumped to one or two blend tanks. The sludge flow is measured by a magnetic flow meter and can be controlled by an automatic valve. Waste rates are set depending on food to mass (F/M) ratio and sludge age and vary between 15 to 33 O.D.T. per day.

7. *Secondary Clarifiers*

Mixed liquor feeds by gravity from the aeration basins into three 65 foot wide by 290 foot long by 15 foot deep rectangular syphon clarifiers. Total capacity is 6.3 million gallons. The three bridges and syphon mechanisms are of Passavant design with rim drive on top of the wall of each clarifier. Settled activated sludge is removed by syphoning through six 8-inch header pipes per clarifier that traverse the bottom of a clarifier as the bridge moves. All syphons empty into a seal box, which then discharges thickened sludge into the sludge trough running lengthwise along the clarifier. The sludge trough feeds the recycle pumps previously described. Recycle rate to aeration is controlled by throttling the recycle pump discharge.

Sludge blanket levels are checked daily by one of the effluent treatment plant operators. Ideal conditions call for a blanket level of 3 feet; however, bulking conditions result at times in higher blanket levels. Sodium hypochlorite is available to control filamentous bulking.

See Attachment C of this Fact Sheet for a flow diagram of the treatment process associated with waste waters discharges from the Rumford mill.

3. RECEIVING WATER QUALITY STANDARDS:

The Androscoggin River is one of the four major New England river basins. The basin extends from the Canadian border to the Atlantic Ocean covering a 3,450 square mile section of eastern New Hampshire and southwestern Maine. New Hampshire has classified the main stem of the river as Class B above and below the Fraser Paper NH LLC's pulp mill in Berlin N.H. and paper mill in Gorham N.H. Maine has classified the river as Class B [Maine law, 38 M.R.S.A. §467(1)(A)(1)] from the Maine-New Hampshire boundary to its confluence with the Ellis River and Class C [Maine law, 38 M.R.S.A. §467(1)(A)(2)] below the Ellis River to the confluence with Merrymeeting Bay in Brunswick. The river above and below the IP mill is classified as a Class C waterway.

Maine law 38 M.R.S.A. §465(4)(B) (as amended via P.L. 2005, Chapter 409) states in part, *The dissolved oxygen content of Class C water may be not less than 5 parts per million or 60% of saturation, whichever is higher, except that in identified salmonid spawning areas where water quality is sufficient to ensure spawning, egg incubation and survival of early life stages, that water quality sufficient for these purposes must be maintained. In order to provide additional protection for the growth of indigenous fish, the following standards apply.*

(1) The 30-day average dissolved oxygen criterion of a Class C water is 6.5 parts per million using a temperature of 22 degrees centigrade or the ambient temperature of the water body, whichever is less, if:

(a) A license or water quality certificate other than a general permit was issued prior to March 16, 2004 for the Class C water and was not based on a 6.5 parts per million 30-day average dissolved oxygen criterion; or

(b) A discharge or a hydropower project was in existence on March 16, 2005 and required but did not have a license or water quality certificate other than a general permit for the Class C water.

(1) This criterion for the water body applies to licenses and water quality certificates issued on or after March 16, 2004.

(2) In Class C waters not governed by subparagraph (1), dissolved oxygen may not be less than 6.5 parts per million as a 30-day average based upon a temperature of 24 degrees centigrade or the ambient temperature of the water body, whichever is less. This criterion for the water body applies to licenses and water quality certificates issued on or after March 16, 2004.

This revision to the classification standard was necessary to codify the 6.5 mg/L criteria utilized by the Department in historic modeling practices and to be consistent with the EPA publication, *Quality Criteria for Water*, 1986, (Gold Book) that establishes a dissolved oxygen criteria with a 30-day mean of 6.5 mg/L to protect and support all species of fish indigenous to the receiving waters and maintain the structure and function of the biological community during typically high seasonal temperatures. This change in water quality standards has not been formally approved by the EPA as a change

3. RECEIVING WATER QUALITY STANDARDS (cont'd)

in the State's Class C water quality standards as of the date of this permitting action and is therefore not in effect. However, on July 19 2005, the EPA formally approved the Department's May 2005 TMDL for the Androscoggin River which utilized the 30-day average dissolved oxygen standard of 6.5 mg/L at a temperature of 22°C in its analysis.

The use of a monthly average standard that considers temperature is premised on the fact that a monthly average standard is designed to protect for those conditions over which salmonid growth may occur. The EPA's the "Gold Book") provides a maximum temperature for zero net growth of Atlantic salmon (20°C), brook trout (19°C), brown trout (17°C) and rainbow trout (19°C).

The highest and therefore most conservative of these values is 20 degrees Celsius. To provide an additional margin of error, the Department considers that a temperature threshold of 22 degrees Celsius will be protective of growth relative to dissolved oxygen.

Gary Chapman, one of the authors of the EPA "Gold Book", provided information (he did not take a position on any particular standard) to the Department during the 2004 legislative deliberations on this standard. Dr. Chapman developed bioenergetics models that specifically integrate temperature, dissolved oxygen and fish growth. By memo dated February 11, 2004, he presented modeling results from laboratory measurements showing how the application of these two different temperatures would affect the total weight of an individual salmon. He emphasized that net annual growth of fish was more relevant than instantaneous monthly growth. Dr. Chapman concluded that *"the possibly slight effect of minimally reduced DO (e.g. down to 5 mg/L or so) during periods of high temperature is probably inconsequential to the annual growth of fish if most of the growth occurs during other periods of the year."* This is because annual growth is limited by water temperature during the summer period but continues during cooler months. The model showed that a 100-gram salmon subject to a temperature of 20 °C would still realize net annual growth but gain 2 grams less net annual weight than one subjected to 24°C. Fish subjected to either condition would grow. In Dr. Chapman's model, a "20 °C fish" has 98% of the weight of a "24 °C fish". Through interpolation, one can expect that a difference between 22°C and 24°C would be even smaller. Given that this is a laboratory model, it is unlikely that this relatively small difference could be reliably measured in a river environment given all the ecological variables fish in a river are subjected to (Sauter et al, 2001).

Therefore, based on a best professional judgment by the Department and EPA's approval of the TMDL to protect and support all species of fish indigenous to the receiving waters and maintain the structure and function of the biological community, this permitting action is utilizing a 30-day average ambient dissolved oxygen criteria of 6.5 mg/L at 22°C in establishing monthly average biochemical oxygen demand (BOD) limitations.

3. RECEIVING WATER QUALITY STANDARDS (cont'd)

Maine law 38 M.R.S.A. §465(4) (as amended via P.L. 2005, Chapter 409) also states in part *Discharges to Class C waters may cause some changes to aquatic life, provided that the receiving waters shall be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.*

Maine law 38 M.R.S.A. §464(13) states *Measurement of dissolved oxygen in riverine impoundments. Compliance with dissolved oxygen criteria in existing riverine impoundments must be measured as follows.*

- A. *Compliance with dissolved oxygen criteria may not be measured within 0.5 meters of the bottom of existing riverine impoundments*
- B. *Where mixing is inhibited due to thermal stratification in an existing riverine impoundment, compliance with numeric dissolved oxygen criteria may not be measured below the higher of:*
 - (1) *The point of thermal stratification when such stratification occurs; or*
 - (2) *The point proposed by the department as an alternative depth for a specific riverine impoundment based on all factors included in section 466, subsection 11-A and for which a use attainability analysis is conducted if required by the United States Environmental Protection Agency*

For purposes of this paragraph, "thermal stratification" means a change of temperature of at least one degree Celsius per meter of depth, causing water below this point in an impoundment to become isolated and not mix with water above this point in the impoundment.

- C. *Where mixing is inhibited due to natural topographical features in an existing riverine impoundment, compliance with numeric dissolved oxygen criteria may not be measured within that portion of the impoundment that is topographically isolated. Such natural topographic features may include, but not be limited to, natural deep holes or river bottom sills.*

Notwithstanding the provisions of this subsection, dissolved oxygen concentrations in existing riverine impoundments must be sufficient to support existing and designated uses of these waters. For purposes of this subsection, "existing riverine impoundments" means all impoundments of rivers and streams in existence as of January 1, 2001 and not otherwise classified as GPA.

3. RECEIVING WATER QUALITY STANDARDS (cont'd)

Maine law, 38 M.R.S.A. Section 414-A, requires that the effluent limitations prescribed for discharges require application of best practicable treatment, be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, Maine law, 38 M.R.S.A., Section 420 and Department Regulation Chapter 530.5, *Surface Water Toxics Control Program*, requires the regulation of toxic substances at the levels set forth for Federal Water Quality Criteria as published by the U.S. Environmental Protection Agency pursuant to the Clean Water Act.

4. RECEIVING WATER QUALITY CONDITIONS

a. Androscoggin River Flow Regime

Beginning in 1983, dissolved oxygen water quality modeling of the Androscoggin River utilized a critical event low flow of 1,550 cfs at Berlin N.H.. This flow rate was based upon a Year-1909 minimum flow maintenance agreement amongst the James River Paper Company, Rumford Falls Power Company, International Paper Company and the Union Water Company, which formed the Androscoggin Reservoir Company. That agreement called for a minimum flow of 1,550 cfs to be maintained at Berlin. Stored water was to be released so that one third (1/3) originates from Azischohos Lake storage and the remaining two thirds (2/3) from the waters impounded by the Errol Middle, Upper and Rangeley Dams.

A USGS stream flow gauging station (#01054000) is maintained on the Androscoggin River near Gorham N.H. (drainage area of 1,361 mi²). The gage has provided daily river flow records since 1929. As a result of the termination of log drives along the river in 1962, only the post-1962 period of record was used for the purposes of establishing a 7Q10 low river flow for the water quality criteria calculations for the Fraser Paper Inc. permit issued on June 10, 1992.

The US Geological Survey has concurred with a statistical analysis supporting use of the post log drive data as indicative of the current hydrologic/regulation conditions. The resultant 7Q10 for the period of record from 1963 to 1989 was determined to be 1,550 cfs at Berlin.

The 7Q10 of the Androscoggin River of 1,663 cfs at the RPC mill in Rumford was developed by the Department using the historic record for the Rumford USGS gage. The harmonic mean for the Androscoggin River at the RPC mill of 2,861 cfs was developed by Walter M. Grayman, a consulting engineer for the US EPA 1990 Risk Assessment for Dioxin, using the USGS data base at the Rumford gage.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

b. Androscoggin River Impoundments

The flow of the Androscoggin River is extensively regulated by numerous dams, both on the river itself and on its tributaries. The existing dams essentially control all but peak flows in the basin. Over 90 percent of the present storage capacity is in the headwaters of the basin above the outlet of Umbagog Lake at Errol, New Hampshire. The only major impoundment on the river itself is Gulf Island Pond (GIP) formed by Gulf Island Dam, near Lewiston, Maine. Gulf Island Dam is a concrete gravity and earthen fill dam with a total length of 2,488 feet and a maximum height of 92 feet. Constructed in 1925-26, the dam consists of earth dikes with concrete core walls at either end of a concrete structure with an overflow spillway section topped by a 7-foot-high inflatable flashboard system (installed in 2002 to replace 7-foot-high hinged steel flashboards), a gated spillway section, an intake section, and a non-overflow bulkhead section. Gulf Island Pond has a surface area of about 2,862 acres and that extends upstream almost 15 miles at a normal full pond elevation of 262 feet mean sea level. The pond is about one-third of a mile wide and has a mean depth of 20 feet although depths in some sections of the pond are as deep as 80 feet. GIP is entirely within the Class C portion of the Androscoggin River.

The Gulf Island powerhouse (referred to as Gulf Island Station) is a brick, steel and concrete structure that is integral with the dam. The powerhouse contains three turbine-generator units rated at a total generating capacity of 22,200 kilowatts at a gross operating head of 56 feet. The maximum hydraulic capacity of the station is 6,450 cubic feet per second.

Gulf Island Station is operated as an intermittent peaking facility that re-regulates river flow through the use of available storage. At inflows approaching the station's maximum effective hydraulic capacity of 5,895 cfs, the station is operated to provide base load power, with the generating units running 24 hours a day and with minimal impoundment fluctuations. River flows in excess of the maximum station capacity are spilled through the gates or over the dam. Spillage occurs about 23% of the time on an average annual basis.

At inflows significantly below 5,895 cfs, the station is operated during weekday morning and evening peak power periods, when electrical demand is highest. Passing generating flows in excess of inflows results in the impoundment being drawn down, typically between two and four feet, over the course of a week. The impoundment is then refilled over the weekend. Drawdowns of about 5 feet occur in anticipation of high spring inflows or maintenance.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

c. Historic Water Quality Assessment/Modeling

The RPC's Rumford mill is one of three large pulp and paper manufacturers which discharge treated process wastewater to the Androscoggin River. The other two, Fraser Paper Inc. approximately 54 river miles upstream in Berlin, NH and International Paper Company's (IP) Androscoggin mill approximately 22 river miles downstream in Jay, Maine. All three mills, in addition to six less significant municipal sources (Berlin and Gorham in New Hampshire and Rumford-Mexico Sewerage District's main plant and Rumford Point plant, Bethel, and Livermore Falls in Maine), as well as non-point sources along the river contribute to a summertime depressed dissolved oxygen (DO) condition in GIP, approximately 32 miles downstream of the IP mill. Water quality modeling undertaken during the 1980's by DEP and the paper companies discharging to the river indicated that, under pre-1991 wastewater discharge limitations, 65% of the volume of Gulf Island Pond would violate Class C DO standards under low flow (7Q10) conditions. This modeling also revealed that reducing BOD loading from upstream point sources would not be enough to bring DO levels in Gulf Island Pond into compliance with standards. As stated in the final TMDL, even if the mills ceased discharging, to the river, GIP would not meet Class C dissolved oxygen standards.

d. 1990 125.3 Demonstration

Federal regulations found at 40 CFR 125.3(f) allow the use of non-treatment techniques (such as in-stream oxygen injection) to meet water quality based limits if, among other things, the technology-based treatment requirements are not sufficient to achieve the standards, and the alternative selected has been demonstrated by the permittee to be a preferred environmental and economic alternative to achieve the standard after consideration of alternatives such as advanced treatment, recycle and reuse, land disposal, changes in operating modes and other available methods. In November 1990, Boise Cascade (BC), IP and James River (JR) jointly submitted a report prepared by Charles T. Main Inc., to satisfy the requirements of the 125.3(f). The report investigated several alternative methods for minimizing the DO deficit at GIP during warm weather and low flow. Of the various alternatives selected for evaluation, the report concluded that the best alternative for achieving DO standards, considering technical, economic, and environmental issues, was for the Rumford treatment facility to discharge at no greater than the BOD limits in the effective State license and NPDES permit of 12,000 lb/day monthly average and 20,000 lb/day maximum daily in combination with 27,000 pounds of dissolved oxygen over a 24-hour period of time directly into GIP at a location about 5 miles upstream of the dam during the months of July, August and September of each year.

Alternatives such as BOD reductions from in-plant modifications or from installation of sand filters were rejected as being uneconomical and inadequate to meet the standards. Land application was rejected as infeasible and environmentally harmful. Closed cycle technologies resulting in zero discharge were rejected as being infeasible at that time. The EPA and the Department agreed with the rejection of these alternatives at that time.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

Central Maine Power Company filed an application with the Federal Energy Regulatory Commission in November 1991 for a new license for the Gulf Island Pond-Deer Rips Project. Exhibit E, Section (2.4.3) of the application indicates that a cursory assessment of alternative withdrawal sites and operating procedures of the dam had been considered. Those alternatives included lowering of the powerhouse intakes, turbine venting, draft tube aeration, operational changes to decrease travel time through the pond, sediment removal and impoundment oxygenation. Central Maine Power Company concluded that of the alternatives available for improving dissolved oxygen concentrations in Gulf Island Pond, continued oxygenation of the impoundment remained the most viable option.

At the time of the previous licensing action (June 1995) the EPA and the Department concluded that, at least for the five-year term of the permit, oxygen injection into GIP was the preferred environmental and economic alternative to meet the DO standard. In recognition of the fact that elimination of the discharges would not result in dissolved oxygen compliance, oxygen injection was considered the best available technology for increasing the dissolved oxygen in Gulf Island Pond.

e. Gulf Island Pond Oxygen Injection System at Upper Narrows (1992)

In 1989, the Department proposed a partial resolution of the summertime DO deficit at GIP through the development of draft permits/licenses for Boise Cascade (BC), (now RPC), and IP requiring more stringent summer limits than the prior year-round permit/license limits. The new summer limits represented a forty (40) percent reduction in BOD loading to the river which in turn required RPC to make capital expenditures at their waste water treatment facility to ensure compliance with the lower limits. Between November 1990 and January 1991, the State of Maine, BC and IP executed Consent Agreements requiring those companies to build and operate an oxygen injection facility at River Mile (RM) 31.4 on the Androscoggin River approximately 5 miles above the GIP dam in a location called Upper Narrows, one of two hydrologic constrictions located on the pond. The Consent Agreement required the system to be in place and operational by June 1, 1992. As a minimum, 27,000 pounds of oxygen would need to be dissolved in the river over a 24-hour time period, on a continuous basis, during the period July 1 through September 30 each year.

In addition to IP and BC, Central Maine Power Company (CMP) (now FPL) and James River (now Fraser Paper Inc.) in Berlin, N.H. were parties to the construction of the oxygenation project and are presently responsible parties in the operation and maintenance of the system. To date, the consent agreement conditions have been met and the system has operated as designed.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

Initially, Gulf Island Pond Oxygenation Project (GIPOP) was operated to inject 73,000 pounds of oxygen into Gulf Island Pond (resulting in a dissolved oxygen input of 27,000 pounds) every 24 hours from July 1 to September 30 annually. In 1999, the DEP approved a revised GIPOP operational plan designed to maximize the transfer of oxygen to the river when needed to meet water quality standards and to minimize the transfer of oxygen when not needed to meet standards. Under the revised operational plan, GIPOP operation begins and ends when the 3-day average water temperature at Turner Bridge is greater than 18 degrees Celsius in June and less than 21 degrees Celsius in September, respectively. Once begun in June, GIPOP operation continues until ending in September, with oxygen injection rates ranging from 8,000 to 91,000 pounds per day depending on river flows and water temperatures.

The January 1991 Consent Agreement between the Department and BC contained a condition that prior to December 1, 1993, BC was to submit a report describing the operational experience of the oxygen addition system and present the results of a validated model study to confirm the effectiveness of the aeration system.

On November 26, 1993, the Department received a report titled Water Quality Analysis of Androscoggin River, Summary of Operational Experience and Post Audit of Water Quality Models for the Gulf Island Pond Oxygenation Project, Volume 3, from Water Quality Associates of Tenafly, New Jersey. The report concluded that dissolved oxygen levels in GIP during the summer of 1993 improved significantly as a result of the oxygenation project. The report stated that at a depth of 20 feet, (approximately 75% of the pond volume), the computer model calculated that with the oxygenation system operational, the dissolved oxygen concentration from Androscoggin River Mile 31 to the Gulf Island Pond Dam was consistently above 7 mg/L whereas without the system, dissolved oxygen concentrations would be about 1 mg/L for that reach.

The Department's field monitoring data for the summer of 1993 indicated that on the day the lowest dissolved oxygen readings in the pond were recorded, approximately 94% of the pond volume met the minimum dissolved oxygen concentration standard of 5 mg/L for Class C waters. On the day the highest dissolved oxygen readings were recorded, approximately 99% of the pond volume attained the 5 mg/L standard. The data indicated a significant improvement in the dissolved oxygen levels within the pond as a result of the installation of the oxygenation system.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

f. Current Water Quality Assessment/Modeling

Based on the available water quality data, the DEP concluded that about 10% of the volume of Gulf Island Pond does not meet Class C minimum instantaneous dissolved oxygen criteria of 5 parts per million under summer low flow and high water temperature conditions and current (actual) point source discharge levels. The DEP also concluded that, under summer low flow and high water temperature conditions and current (actual) point source discharge levels, about 23% of the volume of the pond does not meet the minimum monthly average dissolved oxygen level of 6.5 parts per million at 22°C needed to satisfy Class C narrative criteria for the support of indigenous fish. Non-attainment of DO standards is typically limited to that portion of the pond within 4 miles of Gulf Island Dam and at depths below 35 feet and is based on actual measured conditions in the pond.

Based on the available water quality data, the DEP further concluded that mixing in Gulf Island Pond is inhibited by intermittent thermal stratification during the summer months, and that the point of thermal stratification occurs at a depth of 60 feet in the pond.

Two segments of the Androscoggin River are listed on Maine's 303d list indicating they do not attain Class C water quality standards. The May 2005 final TMDL prepared by the Department contains the follows statements:

Gulf Island Pond does not attain Class C minimum and monthly average dissolved oxygen criteria in a four-mile segment directly above Gulf Island dam primarily in deeper areas of the water column from 30 to 80 feet of depth. In addition, algae blooms occur from excessive amounts of phosphorus discharged to the river flowing into the pond preventing attainment of the designated uses of water contact recreation. In addition to GIP, the Livermore Falls impoundment does not attain Class C aquatic life criteria as indicated by recent water quality evaluations utilizing macro-invertebrate sampling and the use of a linear discriminate modeling.

The pollutants of concern are carbonaceous biochemical oxygen demand (BOD), ortho-phosphorus (ortho-P), total phosphorus (total-P), and total suspended solids (TSS). Reduction of phosphorus is needed to eliminate algae blooms in Gulf Island Pond. Reduction of carbonaceous BOD, TSS, and phosphorus, is needed to improve dissolved oxygen levels to attainment of Class C criteria. In addition, an instream oxygen injection system currently located five miles above Gulf Island Dam needs to be re-designed to provide additional amounts of oxygen in other areas of the pond.

TSS and algae contribute to sediment oxygen demand, a major source of oxygen depletion in the deeper areas of Gulf Island Pond. The 2002 Modeling Report investigated the importance of sediment oxygen demand, oxygen injection, and paper mill BOD input levels upon the model prediction of dissolved oxygen. Sediment oxygen demand (SOD) was found to be the most important since the model prediction of DO changed the most within given percentages of change for SOD. Varying oxygen injection rates resulted in the second largest

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

response to model prediction of DO and the amounts input for the paper mill BOD inputs resulted in the lowest response of the model DO. This is a useful exercise in showing that reducing pollutants that contribute to SOD (algae, TSS) and oxygen injection are more efficient cleanup actions than reducing paper mill BOD. TSS also is the major cause of non-attainment of Class C aquatic life criteria in the Livermore Falls impoundment.

Paper mills located in Berlin, NH; Rumford, ME; and Jay, ME are the major source of most of the pollutants. Municipal point sources are located in Berlin, NH; Gorham, NH; Bethel, ME; Rumford-Mexico, ME; and Livermore Falls, ME. Livermore Falls is a significant source of ortho-P. All municipal point sources are included in the TMDL. The component analysis of average phosphorus loads discharged in 2004 (Figure 10) indicates that paper mills are still the largest source of phosphorus and account for about 70% of the total-P and 80% of the ortho-P entering the pond. International Paper is the largest single source accounting for 45% of the total-P and 57% of the ortho-P entering the pond. The RPC is the second largest single source of phosphorus, accounting for about 14% of the total-P and 21% of the ortho-P entering the pond. All of the municipal discharges are an insignificant percentage of the total phosphorus entering the pond. However, Livermore Falls is nearly 13% of the ortho-P load entering the pond and can be considered to be a significant contributor of ortho-P. The Fraser Paper mill in Berlin, NH accounts for about 11% of the total-P entering the pond, but only 2% of the ortho-P entering the pond.

The rapid loss of ortho-P in the 2004 ambient data in the river from Berlin and to Jay implies a high ortho-P assimilation rate. The ortho-P appears to remain nearly constant from Jay to Turner implying a low ortho-P assimilation rate. The difference is likely because the Androscoggin River is shallower and more free-flowing from Berlin to Jay as opposed to below Jay, which is impounded, and deep. Shallower water is more suited to growth of bottom-attached plants which uptake ortho-P. MDEP's experience modeling ortho-P uptake in other rivers indicates that as ortho-P concentrations increase, the rate of assimilation of ortho-P also increases.

The threshold for the phosphorus TMDL is to maintain the pond averaged chlorophyll-a under 10 ppb. There are different combinations of total-P and ortho-P that could result in obtaining this goal.

Gulf Island Dam contributes to non-attainment of DO criteria and the growth of algae blooms by creating an environment of low water movement and low vertical mixing within the water column. Modeling also indicates that the presence of the dam accounts for about 20% of the algae levels in Gulf Island Pond with the TMDL implemented. Non-attainment of Class C DO criteria in deeper portions of the pond is predicted by the water quality model even if point source discharges are eliminated due to sediment oxygen demand from natural and non-point sources of pollution.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

There are limited opportunities for the control of significant amounts of non-point source pollution given the relatively undeveloped nature of this large watershed.

A 2002 modeling exercise by the Department predicted that it would be difficult to meet DO criteria with the current oxygenation system (at Upper Narrows) involving only one injection point five miles upstream of the dam at a depth of 30 feet. About two miles below the current injection site is the Lower Narrows where the depth of the pond increases rapidly to a depth of 50 feet. The depth eventually reaches 80 feet at the deep hole above the dam. It is difficult for the oxygen injected at a 30-foot depth to reach the deeper areas of the pond located below Lower Narrows. The model predictions indicate that an additional injection point at Lower Narrows or other locations or a redesigned system is needed.

Current modeling indicates that no degree of BOD removal by the upstream users will completely satisfy the DO standard throughout GIP as a significant deficit in DO is due to existing oxygen demand from sediments trapped by the GIP dam. The model predicts that even without BOD discharges from the three mills, the GIP impoundment would not fully meet State DO requirements during critical flow and temperature periods.

g. 2005 125.3 Demonstration

Department Rule, Chapter 524(2)(II)(F) and federal regulations 40 CFR 125.3(f) allow the use of non-treatment techniques (such as in-stream oxygen injection) to meet water quality based limits if, among other things, the technology-based treatment requirements are not sufficient to achieve the standards, and the alternative selected has been demonstrated by the permittee to be a preferred environmental and economic alternative to achieve the standard after consideration of alternatives such as advanced treatment, recycle and reuse, land disposal, changes in operating modes and other available methods.

Given the Department's model predictions indicate that an additional oxygen injection point at Lower Narrows or other locations or a redesign of the existing oxygen injection system at Upper Narrows is needed to achieve Class C dissolved oxygen standards, the Department requested the three pulp and paper mills to submit an updated 125.3 demonstration. On April 18, 2005, Fraser N.H LLC, MeadWestvaco and International Paper submitted a document entitled, Demonstration For Chapter 524(2)(II)(F) And 40 CFR 125.3(F), Gulf Island Pond Oxygenation System to the Department.

The report evaluated technologies and the economics of advanced treatment, recycle and reuse, land disposal, changes in mill production methods and changes in the operations of the waste water treatment facilities. The report evaluated alternatives and the economics for each mill independently and concluded oxygen injection into GIP is the preferred environmental and economic alternative to meet applicable DO standards.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

h. Gulf Island Pond Oxygen Injection System at Upper Narrows

In 2004, at the Department's request, the Gulf Island Pond Oxygenation Partnership undertook an engineering study to determine the effectiveness of the existing oxygenation system and to determine the feasibility and cost of supplemental oxygenation alternatives. The results of this study are contained in a report titled Gulf Island Pond Oxygenation Study, Greene, Maine (December 2004), prepared by Wright-Pierce Civil and Environmental Engineering Services.

Based on available estimates and site data, Wright-Pierce calculated the theoretical overall oxygen transfer efficiency for the existing oxygenation system to be on the order of 25% to 30%, depending on the oxygen flow and the river flow.

Based on additional hydraulic modeling conducted for the study, Wright-Pierce concluded that the gross oxygen transfer efficiency of the existing oxygenation system could be improved by increasing the oxygen diffuser surface area/reducing the oxygen bubble size (i.e., by installing new membrane diffusers) or by an alternative oxygen diffuser configuration (i.e., by installing two diffusers parallel to the shoreline).

Wright-Pierce also evaluated the technical and financial feasibility of various alternative aeration methodologies, including standard diffuser systems, side stream pumping systems, line diffuser systems, and mixers. Based on additional hydraulic modeling conducted for the study, Wright-Pierce concluded that there were several alternatives of essentially equivalent 15-year total costs which would probably result in compliance with DO standards to the thermocline (i.e., the point of thermal stratification) in Gulf Island Pond. These alternatives included: using new or existing oxygen diffusers at Upper Narrows plus new line oxygen diffusers piped from the existing oxygenation facility to Lower Narrows and the Deep Hole above Gulf Island Dam; and using new or existing oxygen diffusers at Upper Narrows plus new mixers installed between Lower Narrows and Gulf Island Dam.

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

As a result of the Department's modeling conclusions and the technical and financial feasibility analysis by the mills, the Department once again concludes for the five-year term of this permit, oxygen injection into GIP is the preferred environmental and economic alternative to meet applicable DO standards. Special Condition K, *Gulf Island Pond Oxygen Injection Operation*, of this permit establishes the requirements for oxygen injection. In the absence of a proposal by the permittee, individually or in conjunction with other parties to construct an oxygen system(s) to meet the default oxygen injection requirements of the Department's May 2005 final TMDL (105,000 lbs/day at Upper Narrows and 105,000 lbs/day at Lower Narrows). This permitting action requires the permittee to:

Beginning the effective date of this permit, the RPC, either individually or in combination with Florida Power Light & Energy (FPLE), International Paper Company and Fraser Paper NH LLC shall operate the Gulf Island Pond oxygenation project (GIPOP) located at Upper Narrows in accordance with the following:

Begin GIPOP at Upper Narrows operation when the 3-day average temperature⁽¹⁾ at the Turner Bridge is greater than 18°C in June.

Oxygen Injection Thresholds	% Normal Capacity	Oxygen Injection* (lb/day)
$Q^{(2)} > 3500$ cfs	Idle	8,000
$T < 24^{\circ}\text{C} \ \& \ 3,000 < Q \leq 3,500$	50%	36,500
$T < 24^{\circ}\text{C} \ \& \ 2,500 < Q \leq 3,000$	75%	54,750
$T < 24^{\circ}\text{C} \ \& \ Q < 2,500$	100%	73,000
$T \geq 24^{\circ}\text{C} \ \& \ Q \leq 3,500$	125%	91,000

* Or equivalent amount injected into the water column at an improved efficiency.

End GIPOP at Upper Narrows operation when 3-day average temperature at Turner Bridge is less than 21°C in September.

The oxygenation system plenum shall be installed and available for operation on June 1 of each year or as soon thereafter as river flows recede to 5,000 cfs or less (to allow for safe installation of the system).

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

Once begun, GIPOP at Upper Narrows operation shall continue, with oxygen injected in accordance with the above requirements, until operation is ended in September, as specified above. Once ended, GIPOP at Upper Narrows operation shall not begin again until the following June, as specified above.

Footnotes:

- (1) All temperature measurements shall be obtained from the continuous temperature monitor at Turner Bridge and shall be expressed as a 3-day rolling average. Because the monitor records maximum and minimum temperatures for a given day, the daily average temperature will be defined as the arithmetic mean of the maximum and minimum temperatures for any given day. The 3-day rolling average is defined as the arithmetic mean of three daily average temperature values.
- (2) All flow measurements shall be obtained from the USGS gage at Rumford and shall be expressed as a 3-day rolling average. The flow gage does record average daily flows thus the 3-day rolling average is defined as the arithmetic mean of the three daily average flow values.

Failure of the system to inject oxygen as specified above in any 24-hour period as measured from 8:00 AM to 8:00 AM shall constitute a license exceedence, with the exception of failures due to extraordinary acts of nature beyond the permittee's control. Failures shall be reported orally to the Department and EPA immediately. Written notification shall be submitted to both agencies within five days.

For the months of June, July, August and September of each calendar year, the permittee shall submit a spreadsheet (similar in format to the example below) to the Department as an attachment to the respective monthly Discharge Monitoring Report (DMR).

<u>Date</u>	<u>Temperature (°C)</u>	<u>River Flow (cfs)</u>	<u>Oxygen Injected (lbs/day)</u>
6/1	23°C	3,200 cfs	38,000 lbs/day
--	--	--	--
6/30	25°C	2,900 cfs	92,150 lbs/day

Beginning June 1, 2010, a new oxygen injection regime (See Special Condition K of this permit) takes effect and is as follows:

On or before June 1, 2010, the permittee shall be responsible of injecting up to 39,900 lbs/day of oxygen (38% of 105,000 lbs/day transferred at 33% efficiency assumed in modeling for the Upper Narrow diffuser) or an equivalent amount at an alternate efficiency at Upper Narrows (Androscoggin River Mile 31.4).

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

On or before June 1, 2010, the permittee shall install and have fully operational, an oxygen injection system located at Lower Narrows (Androscoggin River Mile 29.5) capable of injecting up to 9,573 lbs/day of oxygen at 33% efficiency or an equivalent amount into the water column at an alternate efficiency between June 1 and September 30th of each year.

Interim steps milestones for the new oxygen injection regime are as follows: On or before December 31, 2007, the permittee shall independently or in conjunction with other parties, submit to the Department for review and approval, a scope of work and schedule for the construction of the oxygen injection system(s) or an equivalent measure(s) to comply with dissolved oxygen standards in GIP.

One or before December 31, 2009, the permittee shall independently or in conjunction with other parties, submit to the Department for review, an Operations and Maintenance (O&M) plan for the oxygen injection system(s) or an equivalent measure(s) to comply with dissolved oxygen standards in GIP.

The permittee may independently or in conjunction with other parties, submit to the Department for review and approval, a proposal for an alternate oxygen injection system(s) or an alternate oxygen injection plan(s) regarding quantities of oxygen injected at each site to meet the oxygen injection requirements recommended in the TMDL. The alternate system(s) must be installed and fully operational on or before June 1, 2010.

i. The State of Maine 2004 Integrated Water Quality Monitoring and Assessment Report

In addition to the aquatic life non-attainment in the Livermore Falls impoundment and the dissolved oxygen non-attainment in GIP, a document entitled, The State of Maine 2004 Integrated Water Quality Monitoring and Assessment Report, prepared pursuant to Sections 303(d) and 305(b) of the Federal Water Pollution Control Act, lists the Androscoggin River, main stem, from the Maine/New Hampshire border to the Brunswick Dam (126.3 miles) as, “*Category 4-B: Rivers and Streams Impaired by Pollutants, Pollution Control Requirements Reasonably Expected to Result in Attainment.*” Impairment in this context refers to a fish consumption advisory due to the presence of dioxin. The “*Pollution Control Requirements Reasonably Expected to Result in Attainment*,” refers to the conversion to elemental chlorine free (ECF) bleaching technology in the mid-1990’s at each of the three kraft mills (Fraser Paper in Berlin, N.H., Rumford Paper Company in Rumford, ME. and International Paper in Jay, ME.)

In addition, the 2004 Report lists all freshwaters in Maine as “*Category 5-C: Waters Impaired by Atmospheric Deposition.*” Impairment in this context refers to the designated use of recreational fishing due to elevated levels of mercury in some fish caused by atmospheric deposition. As a result, the State has established a fish consumption advisory for all freshwaters in Maine. As a result, Maine law 38 M.R.S.A., §420 and Department Rule, Chapter 519, *Interim Effluent Limitations and Controls For the Discharge of Mercury*, establishes controls of mercury to surface waters of the State and United States through interim effluent limitations and implementation of pollution prevention plans. See Section 5(f) of this Fact Sheet.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS

- a. Regulatory Basis: The discharge from the RPC's Rumford mill is subject to National Effluent Guidelines (NEG) found in 40 Code of Federal Regulations (CFR) Part 430 – *Pulp, Paper and Paperboard Manufacturing Point Source Category*. The regulation was revised on April 15, 1998 and reorganized 26 sub-categories in the previous regulation into 12 sub-categories by grouping mills with similar processes. Applicable Subparts of the new regulation for the Rumford Paper Company facility are limited to Subpart B, *Bleached Papergrade and Soda Subcategory*, Subpart G, *Mechanical Pulp Subcategory*. The NEG's establish applicable limitations representing; 1) best practicable control technology currently available (BPT) for toxic and conventional pollutants for existing dischargers, 2) best conventional pollutant technology economically achievable (BCT) for conventional pollutants for existing dischargers, and 3) best available technology economically achievable (BAT) for toxic and non-conventional pollutants for existing dischargers. The regulation establishes limitations and monitoring requirements on the final outfall to the receiving waterbody as well as internal waste stream(s) such as the bleach plant effluent. The regulation also establishes limitations based on several methodologies including monthly average and or daily maximum mass limits based on production of pulp and paper produced or concentration limitations based on BPT, BCT or BAT.
- b. Production: For the period January 2000 – June 2004 inclusively, the RPC mill produced an average of 1,842 tons per day (TPD) of fine coated paper (1,252 tons from kraft pulp and 118 tons from groundwood pulp) and 216 tons/day of bleached market kraft pulp. These production values are being used to calculate BPT limitations for BOD and TSS in accordance with the NEG's. For AOX and chloroform limitations in this permitting action, an unbleached production value of 1,252 tons/day is being utilized.

Outfall #001A & 001B (final Effluent)

- c. Flow: The previous licensing action established a monthly average limit of 34.0 MGD that is being carried forward in this permitting action that represents the design flow of the waste water treatment facility. A review of the Discharge Monitoring Report (DMR) data for the period January 2001 to the present indicates the long-term monthly average flows has been 29.6 MGD.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Outfall #001A & 001B (final Effluent)

- d. Dilution Factors: Dilution factors associated with the discharge from the mill's waste water treatment facility were derived in accordance with freshwater protocols established in Department Rule Chapter 530.5, *Surface Water Toxics Control Program*, October of 1994. With a permitted flow of 34.0 MGD, dilution calculations are:

$$\text{Dilution Factor} = \frac{\text{River Flow (cfs)}(\text{Conv. Factor})}{\text{Plant Flow}}$$

$$\text{Acute: } 1\text{Q}10 = 1,663 \text{ cfs} \Rightarrow \frac{(1,663 \text{ cfs})(0.6464)}{34.0 \text{ MGD}} = 31.6:1$$

$$\text{Chronic: } 7\text{Q}10 = 1,663 \text{ cfs} \Rightarrow \frac{(1,663 \text{ cfs})(0.6464)}{34.0 \text{ MGD}} = 31.6:1$$

$$\text{Harmonic Mean: } = 2,861 \text{ cfs} \Rightarrow \frac{(2,861 \text{ cfs})(0.6464)}{34.0 \text{ MGD}} = 54.4:1$$

Foonotes:

- (1) Chapter 530.5 (D)(4)(a) states that analyses using numeric acute criteria for aquatic life must be based on 1/4 of the 1Q10 stream design flow to prevent substantial acute toxicity within any mixing zone. The 1Q10 is lowest one day flow over a ten-year recurrence interval. The regulation goes on to say that where it can be demonstrated that a discharge achieves rapid and complete mixing with the receiving water by way of an efficient diffuser or other effective method, analyses may use a greater proportion of the stream design, up to including all of it. The Department made the determination in the previous licensing action that the discharge does receive rapid and complete mixing with the receiving water, therefore 100% of the 1Q10 is applicable in acute statistical evaluations pursuant to Chapter 530.5.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)**OUTFALL #001A & 001B (Final effluent)****e. Biochemical oxygen demand (BOD₅) & Total suspended solids (TSS):**

The following table contains the monthly average and daily maximum BOD and TSS limitations as calculated utilizing the BPT effluent limitation in the NEG's found at 40 CFR Part 430, Sub-part B, *Bleached Papergrade and Soda Subcategory*

Final Prod. (t/d)	Subpart B	BOD Avg		BOD Max		TSS Avg		TSS Max	
		kg/kkg	lbs/day	kg/kkg	lbs/day	Kg/kkg	lbs/day	kg/kkg	lbs/day
1,842	Kraft Fine Paper	5.5	20,262	10.6	30,050	11.9	43,840	22.15	81,601
216	B-Mkt Kraft	8.05	3,478	15.45	6,674	16.4	7,085	30.4	13,133
2,058	Totals	---	23,740	---	45,724	---	50,925	---	94,734

Summary of NEG calculated BPT Limitations

BOD Avg.	BOD Max.	TSS Avg.	TSS Max.
23,740 lbs/day	45,724 lbs/day	50,925 lbs/day	94,734 lbs/day

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001A & 001B (Final effluent)

The 6/1/95 licensing action contained seasonal BOD5 limits and year-round TSS limits as follows:

	BOD Avg.	BOD Max.	TSS Avg.	TSS Max.
June 1 – Sept 30	12,000 lbs/day	20,000 lbs/day	32,900 lbs/day	61,400 lbs/day
Oct 1 – May 31	14,400 lbs/day	32,300 lbs/day	32,900 lbs/day	61,400 lbs/day

The limitations above were originally established in a 9/91 WDL and carried forward in the 3/92 NPDES permit.

A review of the DMR data for the period January 2001 through July 2004 indicates the mean monthly average BOD and TSS discharged has been as follows

	BOD Avg.	TSS Avg.
June 1 – Sept 30	2,392 lbs/day	5,773 lbs/day
Oct 1 – May 31	2,920 lbs/day	4,624 lbs/day

This permitting action establishes a combination of annual, seasonal, monthly average and daily maximum limitations for BOD and TSS.

BOD

Beginning upon issuance of the permit, the summertime (June 1 – September 30) a monthly average water quality based BOD limit of 8,330 lbs/day as recommended in the May 2005 TMDL is being established to maintain compliance with the 30-day rolling average dissolved oxygen threshold of 6.5 mg/L at 22 °C. This limitation is more stringent than the monthly average BOD limitation in the previous licensing action.

The weekly average and daily maximum water quality based limitations of 12,500 lbs/day and 18,750 lbs/day respectively, are being established to maintain compliance with the instantaneous dissolved oxygen standard of 5 mg/L and are based on a TMDL recommendation. The daily maximum limitation was derived by multiplying the TMDL recommended weekly average of 12,500 lbs/day limitation by a statistically derived factor of 1.5. This factor was derived based on a statistical evaluation of the mills

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)**OUTFALL #001A & 001B (Final effluent)**

historic effluent variability. The non-summer monthly average and daily maximum limitations of 14,400 lbs/day and 32,300 lbs/day respectively are being carried forward from the previous licensing action pursuant to anti-backsliding provisions of Department rule (Chapter 523 §5(1) and federal regulation (USC §1342(o)).

A summary of the BOD limitations in this permitting action is as follows:

	Monthly Average	Weekly Average	Daily Maximum
<u>June 1 – Sept 30</u> <i>Beginning upon issuance</i>	8,330 lbs/day	---	18,750 lbs/day
<u>June 1 – Sept 30</u> <i>Beginning June 1, 2006</i>	8,330 lbs/day	12,500 lbs/day	18,750 lbs/day
<u>Oct 1 – May 31</u> <i>Beginning Oct. 1, 2005</i>	14,400 lbs/day	---	32,300 lbs/day

TSS

This permit establishes seasonal monthly average, 60-day average and annual average water quality based limitations for TSS. Special Condition A, *Effluent Limitations and Monitoring Requirements*, of this permit establishes a five-year schedule to come into compliance with the final water quality based limitations for TSS. Maine law 38 M.R.S.A. §414(2) *Schedules of Compliance*, authorizes the Department to establish schedules of compliance for water quality based limitations within the terms and conditions of a license. The schedule may include interim and final dates for attainment of specific standards and must be as short as possible based on consideration of the technological, economic and environmental impact of the steps necessary to attain those standards. In addition Department rule Chapter 523, Waste Discharge License Conditions, § Section 7, *Schedules of Compliance*, states in part, “*if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.*” See Special Condition Q, *Schedule of Compliance*, of this permit for specifics on the tasks and deadlines within the five-year schedule.

This permit establishes seasonal monthly average, 60-day average and annual average TSS limitations. Beginning June 1, 2010, the final summertime 60-day average (June 1 – September 30) limitation of 11,000 lbs/day is being established as a TMDL recommended limit to mitigate the adverse affects of settleable solids on the macro-invertebrate community in the Livermore Falls impoundment. The interim 60-day average limit of 12,200 lbs/day is being established based on negotiations between the Department and permittee and becomes effective on June 1, 2006. The summertime monthly average limit of 15,500 is being established and is also based on negotiations between the Department and permittee. The non-summertime monthly average limitation

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)**OUTFALL #001A & 001B (Final effluent)**

of 32,900 lbs/day is being carried forward from the previous licensing action. The summertime and non-summertime daily maximum limitations of 40,000 lbs/day and 50,000 lbs/day respectively, are being established based on negotiations between the Department and permittee. The annual average limitation of 15,952 lbs/day is a TMDL recommended limit and is being established to reduce the contribution of sediment oxygen demand to non-compliance in GIP.

Should the permittee request to do so, the Department will consider pollutant trading in accordance with EPA's January 13, 2003, Water Quality Trading Policy. The TMDL has established the trading caps for specific pollutant loadings to GIP to meet water quality standards as well as trading ratios between discharges based on their proximity to GIP and other dischargers.

A summary of the TSS limitations in this permitting action is as follows:

	Monthly Avg.	60-Day Avg.	Annual Avg.	Daily Maximum
<u>June 1 – Sept 30</u> <i>Beginning upon issuance</i>	15,500 lbs/day	---	---	40,000 lbs/day
<u>June 1 – Sept 30</u> <i>Beginning June 1, 2006</i> <i>Beginning June 1, 2010</i>	15,500 lbs/day 15,500 lbs/day	12,200 lbs/day 11,000 lbs/day	15,952 lbs/day 15,952 lbs/day	40,000 lbs/day 40,000 lbs/day
<u>Oct 1 – May 31</u> <i>Beginning Oct. 1, 2005</i>	32,900 lbs/day	N/A	---	50,000 lbs/day
<u>Oct 1 – May 31</u> <i>Beginning January 1, 2006</i>	32,900 lbs/day	N/A	15,952 lbs/day	50,000 lbs/day

Department rule Chapter 523, Waste Discharge License Conditions, § Section 7, *Schedules of Compliance*, states in part, “if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.

- (i) *The time between interim dates shall not exceed 1 year, except that in the case of a schedule for compliance with standards for sewage sludge use and disposal, the time between interim dates shall not exceed six months.*
- (ii) *If the time necessary for completion of any interim requirement (such as the construction of a control facility) is more than 1 year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.*

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001A & 001B (Final effluent)

Special Condition Q, *Schedule of Compliance*, of this permit sets forth interim requirements (in the form of studies/evaluations) and dates for achieving said studies/evaluations pursuant to Chapter 523. In addition, Special Condition Q establishes submission of annual progress reports to the Department for the term of the five-year schedule.

The final effluent limits for TSS may be changed, consistent with governing statutes and regulations, by subsequent permit modifications or renewals issued by the Department resulting from revisions to the TMDL or other new information. Any such changes must meet anti-backsliding requirements contained in Department rules, Chapter 523, §5(l) and 33 U.S.C. §1342(o).

- f. Temperature: The previous permitting action established a daily maximum temperature limit of 110° F that is being carried forward in this permitting action. A review of the Discharge Monitoring Report (DMR) data for the period January 1, 2001 through August 2004 indicates the effluent temperature averages 98.6° F during the summer period (June 1 – September 30) and 92.3° F during the winter time with highest temperature value being 102° F during this time frame. Also see the discussion regarding thermal load limitations in the section *Outfall 00T* of this Fact Sheet.
- g. pH Range: The previous licensing action established a pH range limit of 5.0 – 9.0 standard units that was based on federal regulation 40 CFR, Part 430. This permitting action is carrying the limit forward and continues to be consistent with the federal NEG's.
- h. Adsorbable organic halogens (AOX): The previous licensing action established a 1/Month monitoring requirement for AOX. This permitting action is establishing monthly average and daily maximum technology based mass limits for AOX based on federal regulation found at 40 CFR Part 430. The regulation establishes production based BAT monthly average and daily maximum allowances of 0.623 kg/kkg and 0.951 kg/kkg (lbs per 1000 pounds or metric tons) of unbleached kraft pulp production. With a representative unbleached kraft pulp production figure of 1,252 tons/day (Jan. 01 – Sept. 04) the limits are calculated as follows:

$$\begin{aligned} 1,252 \text{ tons/day} \times 0.623 \text{ lbs/1000 lbs} \times 2000 \text{ lbs/ton} &= 1,560 \text{ lbs /day} \\ 1,252 \text{ tons/day} \times 0.951 \text{ lbs/1000 lbs} \times 2000 \text{ lbs/ton} &= 2,381 \text{ lbs /day} \end{aligned}$$

A review of monthly data provided by the permittee for the period January 2001 to the present indicates the mean monthly average concentration discharged has been 0.349 kg/kkg with a mean monthly mass of 755 #/day. The federal regulations require 1/Day monitoring for AOX on the final outfall. However, given the fact that permittee has demonstrated that the monthly average AOX discharged has only been 50% of the level established in the federal regulation, this permitting action is establishing a monitoring frequency of 3/Week for AOX based on a best professional judgment of the monitoring frequency necessary to determine on-going compliance with the BAT thresholds in the federal regulation.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001A & 001B (Final effluent)

- i. COD: The previous licensing action did not establish final effluent limitations or monitoring requirements for COD. Federal regulation 40 CFR Part 430 has reserved promulgating of specific final effluent limits for COD. The EPA's Permit Guidance Document for implementing 40 CFR Part 430 recommends "... *monitoring of effluent for COD to develop baseline data for developing a COD limit for mills in the future and to provide COD data for helping the mill develop a pollution control strategy.*" The RPC has submitted daily COD test results for the period January 2001 to the present which indicates consistent monthly average mass and concentration results. Therefore, this permit does not establish limitations or monitoring requirements until the EPA formally promulgates a performance standard for COD.
- j. Color: For the RPC mill, applicable sections of Maine law, 38 M.R.S.A., §414-C states that:
 - 2) Best practicable treatment; color pollution. For the purposes of Section 414-A, Subsection 1, best practicable treatment for color pollution control for discharges of color pollutants from the kraft pulping process is:

A) For discharges licensed and in existence prior to July 1, 1989:

- 1) On July 1, 1998 and until December 31, 2000, 225 pounds or less of color pollutants per ton of unbleached pulp produced, measured on a quarterly average basis: and
- 2) On and after January 1, 2001, 150 pounds or less of color pollutants per ton of unbleached pulp produced, measured on a quarterly average basis.

A discharge from a kraft mill that is in compliance with this section is exempt from provisions of subsection 3.

3. An individual waste discharge may not increase the color of any water body by more than 20 color units. The total increase in color pollution units caused by all dischargers to the water body must be less than 40 color pollution units. This subsection applies to all flows greater than the minimum 30-day low flow that can be expected to occur with a frequency of once in 10 years (30Q10). A discharge that is in compliance with this subsection is exempt from the provisions of subsection 2. Such a discharge may not exceed 175 pounds of color pollutants per ton of unbleached pulp produced after January 1, 2001.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001A & 001B (Final effluent)

The 7/23/99 license modification established three tiers of limits for color (quarterly average) as follows:

July 1, 1998 - August 31, 1999	⇒	225 lbs/ton
September 1, 1999 - December 31, 2002	⇒	190 lbs/ton
Beginning January 1, 2003	⇒	150 lbs/ton

This permitting is carrying forward the calendar quarterly average limitation of 150 lbs/ton of bleached kraft pulp produced with a monitoring frequency of 3/Week. The RPC facility is currently in compliance with the best practicable treatment standard of 150 lbs/ton. Since January 1, 2001, the RPC facility has been discharging a mean quarterly average of 77 pounds (range from 72 lbs to 120 lbs) of color per ton of air dried tons of unbleached pulp produced.

- k. Total phosphorus and Ortho-phosphorus – This permitting action is establishing seasonal (June 1 – September 30) monthly average total phosphorus and ortho-phosphorus mass limitations. The final limitations of 152 lbs/day and 97 lbs/day respectively, were based on the recommendations in the May 2005 final TMDL and were derived based on mass discharge values for both parameters for the period May 1 – September 30, 2004. This permitting action also establishes a seasonal (June 1 – September 30) monthly average and daily maximum reporting requirement for concentration for both parameters to track discharge performance as well as a monitoring frequency of 3/Week.. The permittee has indicated that the proposed mass limits were exceeded in July of 2004, and that there has been insufficient opportunity at the waste water treatment facility to observe if these nutrients levels are adequate to continuously to sustain a healthy biological community in the aeration basin during summer temperatures.

As with TSS, this permit establishes a schedule of compliance pursuant to Maine law 38 M.R.S.A., §414(2) *Schedules of Compliance*, and Department rule Chapter 523, Waste Discharge License Conditions, § Section 7, *Schedules of Compliance*, such that final mass limit consistent with the TMDL recommendations become effective June 1, 2010. The permit also establishes interim limitations for the period beginning the effective date of the permit, and lasting through June 1, 2010. Based on the collective list of studies and evaluations listed in Special Condition Q of this permit, the Department has deemed a schedule of five years to be necessary and is as short as possible based on consideration of the technological, economic and environmental impact of the steps necessary to meet some combination of total phosphorus and ortho-phosphorus limitations in this permit.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

At the permittee's written request, the Department may approve another combination of total phosphorus and ortho-phosphorus discharge limits that is equally protective of water quality in the Gulf Island Pond. A written request shall be based on the methods of evaluation used in the TMDL.

Maine law 38 M.R.S.A, §465 (as amended via P.L. 2005, Chapter 409), the State Legislature found that *"the mitigation of water quality impairments on certain Class C waters requires extraordinary limitations on the discharge of certain pollutants, including phosphorus, that will reasonably necessitate longer than usual time frames for implementation."*

Maine law 38 M.R.S.A. §465-B(5) (as amended via P.L. 2005, Chapter 409) states:

Water quality modeling. The Department of Environmental Protection shall supervise additional modeling of Gulf Island Pond on the Androscoggin River in order to review and, as appropriate, revise the total maximum daily load for phosphorus.

- 1. The additional modeling must be done under contract to the department and funded by those dischargers seeking additional information on the present total maximum daily load for phosphorus.*
- 2. The additional modeling must be based on ambient data collected under reduced loading conditions to Gulf Island Pond, including model parameters such as sediment oxygen demand, chlorophyll-a concentration at critical conditions and phosphorus assimilation and mineralization rates.*
- 3. The model revisions must be completed by March 15, 2009 and submitted to the Department of Environmental Protection and a 3rd-party peer reviewer for review and evaluation. The 3rd-party peer reviewer must be approved by the joint standing committee of the Legislature having jurisdiction over natural resources matters.*
- 4. The peer reviewer shall submit recommendations on the model revisions and any revised total maximum daily load for phosphorus to the Department of Environmental Protection by June 15, 2009. By September 15, 2009, the department shall publish for review and public comment a revised modeling report and total maximum daily load for phosphorus that is based on the peer reviewer's recommendations.*
- 5. By March 15, 2010, the Department of Environmental Protection shall issue revised licenses, as needed, that are based on the revised and approved total maximum daily load report for phosphorus created as a result of the modeling revisions pursuant to this section.*

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

6. *Any reallocation of phosphorus among licensed dischargers contributing to algae blooms in Gulf Island Pond must take into consideration all prior total maximum daily load allocations, license limits and attainment of interim or final phosphorus limits as issued in prior total maximum daily loads or licenses so as not to create inequities in regard to attainment of prior phosphorus limits. The purpose of this subsection is to prevent penalizing dischargers who have attained early compliance with prior license limits or total maximum daily load allocations.*
7. *Any change in license limits based on a revised and approved total maximum daily load for phosphorus must comply with anti-backsliding requirements contained in state and federal law.*
8. *The Department of Environmental Protection is not obligated to make revisions to the model or existing approved total maximum daily load if funding is not provided for the additional work described in this section.*
9. *It is the intent of the Legislature that dischargers shall make continuous progress in actual effluent reductions towards reaching final allocations under the total maximum daily load allocations in existence on the effective date of this section or as revised under this section to March 15, 2010.*

The final effluent limits for total phosphorus or ortho-phosphorus may be changed, consistent with governing statutes and regulations, by subsequent permit modifications or renewals issued by the Department resulting from revisions to the TMDL or other new information. Any such changes must meet anti-backsliding requirements contained in Department rules, Chapter 523, §5(l) and 33 U.S.C. §1342(o).

1. Whole Effluent Toxicity (WET) and Chemical Specific Testing – Maine Law, 38 M.R.S.A., Sections 414-A and 420, prohibits the discharge of effluents containing substances in amounts which would cause the surface waters of the State to contain toxic substances above levels set forth in Federal Water Quality Criteria as established by the EPA. Department Rules, 06-096 CMR Chapter 530.5, *Surface Water Toxics Control Program*, set forth ambient water quality criteria (AWQC) for toxic pollutants and procedures necessary to control levels of toxic pollutants in surface waters.

WET and chemical specific (priority pollutant) testing, as required by Chapter 530.5, is included in order to fully characterize the effluent. This permit also provides for reconsideration of effluent limits and monitoring schedules after evaluation of toxicity testing results. The monitoring schedule includes consideration of results currently on file, the nature of the waste water, existing treatment and receiving water characteristics.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001 (Final effluent)

WET monitoring is required to assess and protect against impacts upon water quality and designated uses caused by the aggregate effect of the discharge on specific aquatic organisms. Acute and chronic WET tests are performed on invertebrate and vertebrate species. Chemical specific, or "priority pollutant (PP)," testing is required to assess the levels of individual toxic pollutants in the discharge, comparing each pollutant to acute, chronic, and human health water quality criteria.

The Department issued a Fact Sheet to MeadWestvaco on 2/1/95 which outlined the WET testing requirements under Department Rule Chapter 530.5, Surface Water Toxics Control Program. The regulation placed the facility in the high frequency category for WET and chemical specific testing as the facility was licensed to discharge greater than 1.0 MGD and the facility discharged industrial process waste waters.

The Department's database for WET and chemical specific test results for the RPC indicates the facility has fulfilled the WET testing and chemical specific testing as required by Department rule Chapter 530.5. See Attachment D of this Fact Sheet for a summary of the WET test results and Attachment E of this Fact Sheet for a summary of the chemical specific test dates. Department Regulation Chapter 530.5 and Protocol E(1) of a document entitled Maine Department of Environmental Protection, Toxicity Program Implementation Protocols, dated July 1998, states that statistical evaluations shall be periodically performed on the most recent 60 months of WET and chemical specific data for a given facility to determine if water quality based limitations must be included in the permit.

On May 2, 2005, the Department conducted a statistical evaluation on the aforementioned tests results in accordance with the statistical approach outlined in EPA's March 1991 document entitled Technical Support Document (TSD) for Water Quality Based Toxics Control, Chapter 3.3.2 and Maine Department of Environmental Protection Guidance, July 1998, entitled Toxicity Program Implementation Protocols.

WET:

The 5/2/05 statistical evaluation indicates that the discharge from the RPC mill does not exceed or have a reasonable potential to exceed the critical ambient water quality threshold of 3.2% (mathematical inverse of the acute and chronic dilution factor of 31.6:1) for any of the species tested to date.

Chapter 530.5 establishes baseline surveillance level WET testing at a frequency of 1/Year. Surveillance level WET testing shall be conducted on the invertebrate species the water flea (*Ceriodaphnia dubia*) and the vertebrate species the fathead minnow (*Pimephales promelas*) in the first four years of the permit. Tests shall be conducted in a different calendar quarter of each year such that a WET test is conducted in all four calendar quarters during the first four years of the permit. Beginning twelve (12) months prior to the expiration date of the permit the permittee is required to revert back to a screening level of testing of 1/Quarter for four consecutive calendar quarters. Testing

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #001A & 001B (Final effluent)

shall be conducted on the invertebrate species the water flea in all four quarters and on the vertebrate species the fathead minnow in two of the four quarters and the vertebrate species the brook trout (*Salvelinus fontinalis*) in the remaining two of the four calendar quarters.

Chemical Specific

As for chemical specific parameters, the test results on file at the Department indicate the 5/2/05 statistical evaluation indicates none of the parameters tested to date exceed or have a reasonable potential to exceed acute, chronic or human health AWQC.

As with WET testing, Chapter 530.5 establishes surveillance level testing and screening level testing for chemical specific testing. Therefore, this permitting action establishes a surveillance level of testing of 1/Year upon issuance of the permit and a screening level of testing of 1/Quarter for four consecutive quarters beginning 12 months prior to the expiration date of the permit.

m. Mercury

Pursuant to Maine law, 38 M.R.S.A. §420 and Department rule, 06-096 CMR Chapter 519, *Interim Effluent Limitations and Controls for the Discharge of Mercury*, the Department issued a *Notice of Interim Limits for the Discharge of Mercury* to the permittee thereby administratively modifying WDL # W000955-44-C-R by establishing interim monthly average and daily maximum effluent concentration limits of 35.8 parts per trillion (ppt) and 53.7 ppt, respectively, and a minimum monitoring frequency requirement of four tests per year for mercury. The interim mercury limits were scheduled to expire on October 1, 2001. However, effective June 15, 2001, the Maine Legislature enacted Maine law, 38 M.R.S.A. §413, sub-§11 specifying that interim mercury limits and monitoring requirements remain in effect. It is noted that the mercury effluent limitations have not been incorporated into Special Condition A, *Effluent Limitations And Monitoring Requirements*, of this permit as the limits and monitoring frequencies are regulated separately through Maine law, 38 M.R.S.A. §413 and Department rule Chapter 519. The interim mercury limits remain in effect and enforceable and modifications to the limits and/or monitoring frequencies will be formalized outside of this permitting document pursuant to Maine law, 38 M.R.S.A. §413 and Department rule Chapter 519. It is noted the RPC's test results for calendar year 2004 range from 4 ppt – 12 ppt.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #100 (Bleach Plant)

In accordance with federal regulation 40 CFR Part 430, this permitting action is establishing limitations and monitoring requirements for an internal point source, the combined bleach plant filtrate effluents.

- m. Flow: The previous licensing action established a monthly average reporting requirement for flow from the bleach plant. The permittee has installed a flow meter on the combined bleach plant effluent line subsequent to the previous licensing action such that flow is measured continuously. This permitting action is establishing a monthly average and daily maximum reporting requirement.
- n. 2,3,7,8-TCDD (Dioxin): The previous licensing action established a daily maximum concentration limit of <10 ppq (pg/L) with a monitoring frequency of 2/Quarter for dioxin based on Maine law, 38 M.R.S.A., §420. The limit of 10 pg/L is also the ML (Minimum Level - the level at which the analytical system gives recognizable signals and an acceptable calibration point) for EPA Method 1613. Federal regulation 40 CFR Part 430 establishes the same limitation and is therefore being carried forward in this permitting action. The federal regulation establishes a monitoring frequency of 1/Month.
- o. 2,3,7,8 TCDF (Furan): The previous licensing action established two tiers of daily maximum concentration limits for furan. The license established a limit of <100 ppq (pg/L) through December 31, 1999 and then was reduced to <10 ppq (pg/L) beginning January 1, 2000, based on Maine law, 38 M.R.S.A., §420. The monitoring frequency was established at 2/Quarter like dioxin. The limit of 10 pg/L is also the ML for furan for EPA Method 1613. Federal regulation 40 CFR Part 430 establishes a daily maximum concentration limit of 31.9 pg/L. Being that Maine law is more stringent, the limit of <10 pg/L is being carried forward in this permitting action. The federal regulation establishes a monitoring frequency of 1/Month.

Federal regulation 40 CFR Part 430 does authorize the permitting authority to modify the monitoring frequency for dioxin and furans after five years of monitoring data (60 data points) for dioxin and furan has been collected. The RPC has been monitoring the bleach plant effluent for dioxin and furan since 1997 and has more than 60 data points. The data collected to date indicates dioxin and furan has been less than the respective MLs of 10 ppq since the transition to the elimination of elemental chlorine from the bleaching process was completed in 1997. Therefore, the Department is modifying the 1/Month monitoring requirement by establishing a monitoring requirement of 1/Year for dioxin and furan. In lieu of the 1/Month monitoring requirement, Special Condition L, *Dioxin/Furan Certification*, of this permit requires the permittee to submit an annual certification indicating the bleaching process has not changed from previous practices and therefore the formation of dioxin/furan compounds is highly unlikely.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #100 (Bleach plant)

It is noted, Maine law 38 M.R.S.A., §420(2)(I)(3) states that - After December 31, 2002, a mill may not discharge dioxin into its receiving waters. For purposes of this subparagraph, a mill is considered to have discharged dioxin into its receiving waters if 2, 3, 7, 8 - tetrachlorodibenzo-p-dioxin or 2, 3, 7, 8 - tetrachlorodibenzo-p-furan is detected in any of the mill's internal waste streams of its bleach plant and in a confirmatory sample at levels exceeding 10 picograms per liter, unless the Department adopts a lower detection level by rule, which is a routine technical rule pursuant to Title 5, chapter 375, subchapter II-A, or a lower detection level by incorporation of a method in use by the United States Environmental Protection Agency, or if levels of dioxin, as defined in section 420-A, subsection 1 detected in fish tissue sampled below the mill's wastewater outfall are higher than levels in fish tissue sampled at an upstream reference site not affected by the mill's discharge or on the basis of a comparable surrogate procedure acceptable to the commissioner. The commissioner shall consult with the technical advisory group established in section 420-B, subsection 1, paragraph B, subparagraph (5) in making this determination and in evaluating surrogate procedures. The fish-tissue sampling test must be performed with differences between the average concentrations of dioxin in the fish samples taken upstream and downstream from the mill measured with at least 95% statistical confidence. If the mill fails to meet the fish-tissue sampling-result requirements in this subparagraph and does not demonstrate by December 31, 2003 to the commissioner's satisfaction that its wastewater discharge is not the source of elevated dioxin concentrations in fish below the mill, then the commissioner may pursue any remedy authorized by law.

The previous licensing action required the RPC mill to participate in the dioxin monitoring program specified in Maine law 38 M.R.S.A., 420-A(2). On May 3, 2005, the Department presented a document to the Natural Resources Committee of the Maine Legislature reporting on the status of each mill regarding the “above/below” test. In the report, the Department has made the determination based on the fish tissue results collected to date above and below the RPC mill, that the RPC is in compliance with Maine law 38 M.R.S.A., §420(2)(I)(3). Therefore, the RPC has been granted a reduction in the monitoring frequency for dioxin and furans at the end of the bleach plant.

- o. Twelve Chlorophenolics: The previous licensing did not establish limitations or monitoring requirements for the chlorophenolic compounds specified in this permitting action. Federal regulation 40 CFR Part 430 establishes said parameters and limitations. The technology based limitations vary from 2.5 ug/L to 5.0 ug/L and are equivalent to the ML for each parameter using EPA Method 1653. A 1/Month monitoring requirement has also been established based on the federal regulation.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #100 (Bleach Plant)

- p. Chloroform: The previous licensing action did not establish limitations or monitoring requirements for chloroform. This permitting action is establishing monthly average and daily maximum mass limits for chloroform based on federal regulation found at 40 CFR Part 430. The regulation establishes production based BAT monthly average and daily maximum allowances of 4.14 g/kkg and 6.92 g/kkg of unbleached pulp production. With a historic unbleached kraft production of 1,252 tons/day the limits are calculated as follows:

$$1,252 \text{ tons/day} \times 4.14 \text{ g/kkg} \times 0.907 \text{ kkg/ton} \times 1.0 \text{ lb/ 454 g} = 10.4 \text{ lbs /day}$$

$$1,252 \text{ tons/day} \times 6.92 \text{ g/kkg} \times 0.907 \text{ kkg/ton} \times 1.0 \text{ lb/ 454 g} = 17.3 \text{ lbs /day}$$

A monitoring requirement of 1/Week has been established based the federal regulation.

OUTFALL #00TA & 00TB (Seasonal thermal load limitation)

This “outfall” is not a physical outfall structure discharging to a receiving water but an administrative “outfall” utilized to track thermal loadings rejected collectively by Outfalls 001, 002, 003, 004 (and in some instances Outfall #005) from the mill to the Androscoggin River.

The 1996 license modification established a seasonal daily maximum thermal load limitation of 1.43×10^{10} British Thermal Units (BTU's)/Day for Outfall 001, 002, 003 and 004 collectively. The license modification also provided for a discharge from Outfall #005 should the cooling towers from the Cogeneration facility be off-line. It is noted the license modification required the cooling towers to be operated between May 15th and September 30th of each year. In the unlikely event of a discharge from Outfall #005, the facility was limited to a daily thermal load of 2.16×10^{10} BTU's/Day from Outfalls 001, 002, 003, 004 and 005 collectively. The daily maximum thermal limitation for the mill was established in accordance with the past demonstrated performance methodology established in Maine law, 38 M.R.S.A., §464(4)(I)(since repealed) that stated the amount of heat discharged on any single day may not exceed 1.15 times the maximum 7-day average heat discharged in any 7-day period between January 1, 1989 and January 1, 1995. The 1996 licensing action also established a formal thermal mixing zone, which is being carried forward in this permitting action.

Department Rule Chapter 582, *Regulations Relating To Temperature*, limits thermal discharges to an in-stream temperature increase (ΔT) of 0.5° F above that temperature that would naturally occur outside a mixing zone established by the Board when the weekly average temperature of the receiving water is greater than or equal to 66° F or when the daily maximum temperature is greater than or equal to 73° F. The temperature thresholds are based on EPA water quality criterion for the protection of brook trout and Atlantic salmon (both species indigenous to the Androscoggin River). The weekly average temperature of 66° F was derived to protect for normal growth of the brook trout and the daily maximum threshold temperature of 73° F protects for the survival of juveniles and adult Atlantic salmon during

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #00T (Seasonal thermal load limitation)

the summer months. As a point of clarification, the Department interprets the term "weekly average temperature" to mean a seven (7) day rolling average. To promote consistency, the Department also interprets the ΔT of 0.5°F as a weekly rolling average criterion when the receiving water temperature is $\geq 66^{\circ}\text{F}$ and $< 73^{\circ}\text{F}$. When the receiving water temperature is $\geq 73^{\circ}\text{F}$ compliance with the ΔT of 0.5°F is evaluated on a daily basis.

Maine law, 38 M.R.S.A., §464(4)(I) (since repealed) stated in part that dischargers must demonstrate to the satisfaction of the Department that they are unable to meet the standards in the existing temperature rule after application of best practicable treatment (BPT). In supplemental information to their 1996 application for establishing the mixing zone and their 1999 application for license renewal (supplemented in November of 2004), MeadWestvaco (former owner/operator of the RPC mill) identified numerous temperature reduction projects and waste water treatment minimization practices. The projects are summarized as follows:

- 1994 – Bleachery Effluent Heat Exchanger

A \$967,000 project installed heat exchangers and cooling towers to cool the bleachery effluent providing a 5°F reduction in the mill effluent temperature.

- 1996 - No. 15 Paper Machine Oil Cooler

A chiller system was installed on the No. 15 Paper Machine Oil Cooler in 1996 to reduce flow of hot water to the effluent treatment plant. This project allowed for closed loop cooling of the oil rather than a "once-through" flow providing a reduction of 400 gallons per minute of warm water from the effluent system. This project cost approximately \$300,000.

- 1998 & 1999 - Aeration Basin Cooling System Upgrades

A series of upgrades and modifications to the aeration basin systems, including the installation of six new spray coolers, took place in 1998 and 1999. This resulted in a significant reduction of the mill effluent temperature, estimated to be approximately 6 to 7°F , at a cost of approximately \$750,000.

- 1998 – Hot #1 Water System

Hot water and hot condensate sources from areas of the mill that were unable to reuse the water were collected, filtered, and piped long distances to other areas of the mill that could reuse rather than sewer the hot water. The project reduced approximately 500 gallons per minute of hot water from the sewer and cost \$350,000.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #00T (Seasonal thermal load limitation)

- 1999 – Groundwood Press Heat Exchangers

A component of this project installed two spiral heat exchangers to reduce the temperature of the approximately 500 gallons per minute of pressate removed from the groundwood pulp before entering the treatment plant.

- 2000 - Stripped Condensate Reuse

Equipment has been installed to reuse stripped condensate from the Steam Stripper for use at the hardwood decker. This project reuses approximately 650 gallons per minute of hot water, which reduces the mill sewer temperature by approximately 1 °F, at a cost of approximately \$275,000.

- 2001 – Chlorine Dioxide Heat Exchangers

Chlorine dioxide heat exchangers were installed during 2001 that cool bleach plant effluent with chlorine dioxide that enters the bleaching process. This system costs about \$500,000 and saves approximately 0.8 °F.

- 2003 – Hardwood Brownstock Washer Upgrade

Before in 2003, the hardwood brownstock washing line was upgraded with the installation of a Drum Displacement (“DD”) washer. This washer reduced losses of hot, weak black liquor causing a reduction in color and in thermal loading to the treatment plant. The project allowed reuse of some contaminated condensates for shower water because the vent gases from the washer was collected and burned and has generated less hot, contaminated evaporator condensate.

Maine law, 38 M.R.S.A., §451 states that after adoption of any classification by the Legislature for surface waters or tidal flats or sections thereof, it is unlawful for any person, firm, corporation, municipality, association, partnership, quasi-municipal body, state agency or other legal entity to dispose of any pollutants, either alone or in conjunction with another or others, in such manner as will, after reasonable opportunity for dilution, diffusion or mixture with the receiving waters or heat transfer to the atmosphere, lower the quality of those waters below the minimum requirements of such classifications, or where mixing zones have been established by the department, so lower the quality of those waters outside such zones, notwithstanding any exemptions or licenses which may have been granted or issued under sections 413 to 414-B.

Section 451 also states that, after opportunity for hearing, the Department may establish by order a mixing zone with respect to any discharge for which a license has been issued pursuant to section 414.

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #00T (Seasonal thermal load limitation)

Section 451 also states that the purpose of a mixing zone is to allow a reasonable opportunity for dilution, diffusion or mixture of pollutants with the receiving waters before the receiving waters below or surrounding a discharge will be tested for classification violations. In determining the extent of any mixing zone to be established under this section, the Department may require from the applicant testimony concerning the nature and rate of the discharge; the nature and rate of existing discharges to the waterway; the size of the waterway and the rate of flow therein; any relevant seasonal, climatic, tidal and natural variations in such size, flow, nature and rate; the uses of the waterways in the vicinity of the discharge, and such other and further evidence as in the Department's judgment will enable it to establish a reasonable mixing zone for such discharge. An order establishing a mixing zone may provide that the extent thereof varies in order to take into account seasonal, climatic, tidal and natural variations in the size and flow of, and the nature and rate of, discharges to the waterway.

MeadWestvaco submitted extensive instream temperature monitoring data that was collected in accordance with Department guidance between 1992 and 1994. A final report titled "Thermal Impacts to the Androscoggin River" was submitted to the Department on December 13, 1994. In addition, MeadWestvaco conducted an instream dye study on November 11 & 12, 1994 to determine the point downstream where complete mixing of the mill discharges takes place. It was determined that Outfalls 001, 002, 003 & 004 completely mix with the receiving waters at the Hunt's airfield transect which is approximately 2.2 miles downstream of Outfall 004. The Department and MeadWestvaco agreed that this segment of the receiving water was to be considered the zone of initial dilution.

MeadWestvaco's report concluded that at the downstream end of the zone of initial dilution, instream temperature monitoring data collected between 1992 and 1994 demonstrated that the thermal discharge from the mill was in compliance with the Chapter 582 regulation. MeadWestvaco maintained the position that diurnal fluctuations are responsible for instream ΔT 's of greater than 0.5° F.

The Department reviewed MeadWestvaco's thermal report and disagreed with their conclusion. In a memorandum of February 16, 1995, the Bureau of Land and Water Quality's Division of Environmental Assessment concluded that long- term averages indicate that the ΔT at the Hunts airfield transect is 1.5°F. The memorandum went on to say that the temperature data indicates that the discharge would not be in compliance with the Chapter 582 regulation's ΔT threshold of 0.5°F until 12 miles downstream of Outfall 004 or nearly 10 miles below the zone on initial dilution.

In a meeting on November 29, 1995 between representatives of the Department and MeadWestvaco, MeadWestvaco maintained its position that diurnal fluctuations were principally responsible for the elevated instream ΔT 's. A consensus was reached however, that it is extremely difficult to separate out what portion of the ΔT is due to the thermal discharge from the mill and what portion is due to diurnal fluctuations. As a result, it was agreed that establishment of a formal mixing zone would be the preferred option to address the thermal discharge issue. As a result, on February 27, 1996, the Department issued

5. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

OUTFALL #00T (Seasonal thermal load limitation)

#W000955-51-A-N that established a zone of initial dilution and a mixing zone that are being carried forward in this permitting action. The WDL stated that the receiving waters are not to be tested for temperature violations within the designated zone of initial dilution or the established mixing zone.

The zone of initial dilution for the thermal discharge from the Rumford mill is described as beginning at Outfall 001 and extending downstream a distance of approximately 2.2 miles to the west end (upstream end) of Burke Island. See Attachment B of this permit for map illustrating the extent of the zone of initial dilution.

The mixing zone established by the Department for the thermal discharge from the Rumford mill is described as beginning at the west end of Burke Island and extending downstream approximately 10 miles to a point where the Dixfield, Canton and Peru Town lines intersect at a point in the thread of the Androscoggin River. See Attachment B of this permit for a map illustrating the extent of the mixing zone.

The Department finds the 1996 licensing action that established a Board approved mixing zone and a daily maximum thermal limitation to be in compliance with Maine law 38 M.R.S.A., §451 and Department Rule Chapter 582. However, the Department's goal is to reduce thermal discharges through continuous improvement where feasible for facilities with thermal mixing zones. Therefore, the thermal mixing zone established in the 1996 licensing action is being carried forward in this permitting action and a more stringent daily maximum thermal limitation is being established in this permitting action.

On November 2004, MeadWestvaco submitted updated thermal calculations to the Department. The calculations indicate that for the summer months (June – September) between June 2001 and September of 2004, the highest 7-day quantity of heat collectively discharged was 1.05×10^{10} BTU/day. Therefore, in keeping with the methodology established in the Maine law, 38 M.R.S.A., §464(4)(I) (since repealed) and utilized in the 1996 licensing action, the Department is reducing the daily maximum heat load limitation from 1.43×10^{10} BTU/day to 1.21×10^{10} BTU/day for Outfalls 001, 002, 003 and 004 collectively. As with the 1996 licensing action, the daily maximum limitation was derived by multiplying the weekly average heat load of 1.05×10^{10} BTU/day by a factor of 1.15. If the co-generation cooling towers are off-line and a discharge from Outfall #005 becomes necessary, the permittee will be limited to a daily maximum heat load of 2.05×10^{10} BTU/day.

Special Condition I, *Thermal Load*, of this permitting action requires the permittee to continue to investigate water reuse projects within the mill and waste water treatment technology alternatives to reduce the thermal discharge to the Androscoggin River. As an exhibit in the next application for permit renewal, the permittee shall submit a summary of the projects undertaken during the term of this permit to reduce the heat load discharged. The report shall list the individual projects and quantify the heat load in BTU's/day that was removed from the discharge point(s).

6. GULF ISLAND POND (GIP) OXYGEN INJECTION SYSTEM

In 1989, the Department proposed a partial resolution of the summertime dissolved oxygen deficit at GIP through the development of draft permits/licenses for BC (formerly MeadWestvaco and now RPC) and International Paper (IP) requiring somewhat more stringent summer limits than the prior year round permit/license limits, although the new summer limits would not necessarily require production process changes and/or construction of additional treatment facilities. Between November 1990 and January 1991, the State of Maine, BC and IP executed Consent Agreements requiring those companies to build and operate an oxygen injection facility at River Mile (RM) 31.4 on the Androscoggin River approximately 5 miles above the GIP dam. The Consent Agreement required the system to be in place and operational by June 1, 1992. As a minimum, 27,000 lb/day of oxygen would be injected continuously during the period July 1 through September 30 each year.

In addition to BC and IP, Central Maine Power Company (now Florida Power Light & Energy) and James River (now Fraser Paper Inc.) in Berlin, N.H. were parties to the construction of the oxygenation project and are presently responsible parties in the operation and maintenance of the system. These four entities have formed a partnership and have signed a contractual agreement amongst themselves outlining the responsibilities of each party. To date, the consent agreement conditions have been met and the system has operated as designed.

In June of 1999, the Department modified the licenses for MeadWestvaco and IP by establishing a “sliding scale” for oxygen injection as a function of both river flow and ambient river flow temperature. This modification was necessary as a seasonal (July 1 – September 30) steady state injection of 73,000 lbs/day of oxygen into the river (regardless of river flow or river temperature) resulted in oxygen being wasted when the river flow was high and or the ambient river temperature was low and a not enough oxygen being injected when the river flow was low and or the ambient river temperatures were high.

Based on the May 2005 final TMDL, the Department has determined that as a default, an injection of 105,000 pounds per day of oxygen is required (assuming a 33% transfer efficiency) at two locations in Gulf Island Pond; one at Upper Narrows (location of the existing oxygenation system) and one at Lower Narrows, approximately 3 miles downstream of the Upper Narrows system during low flow conditions. The Lower Narrows location is important as the water depth is deeper than the Upper Narrows site. An oxygenation system located deeper in the pond and closer to the area of sub-standard ambient dissolved oxygen will provide an opportunity for oxygen injection system to more effective in improved ambient dissolved oxygen levels.

To date, the Department has not received a proposal from the partnership to collectively design and construct a new and or modify the existing oxygenation system to satisfy the TMDL’s default oxygenation injection recommendations. Therefore, the Department established oxygen injection requirements for each entity via the MEPDES, NPDES permits and the Section 401 Water Quality Certification taking into consideration individual mill’s impact on dissolved oxygen depletion based on loadings of phosphorus, BOD and TSS to GIP, and the dam’s effect on dissolved oxygen and individual’s contractual obligations for the existing oxygenation system at Upper Narrows.

6. GULF ISLAND POND (GIP) OXYGEN INJECTION SYSTEM (cont'd)

It is the Department's understanding at the time of this permitting action, the contractual agreement for the operation and maintenance of the existing oxygenation system at Upper Narrows is as follows: FPLE 14%, Fraser 10%, RPC 38% and IP 38%. Based on collective loadings of phosphorus, BOD and TSS that are representative of current discharges levels and assimilation rates for each parameter, the Department has determined the individual percentages of pollutant loading to GIP are Fraser 20.13%, RPC, 32.64% and IP 47.23%.

The May 2005 final TMDL indicates with zero discharge from the pulp and paper mills oxygen injection is still required due to dissolved oxygen deficiencies caused by sediment oxygen as a result of the presence of the Gulf Island Dam. Modeling for the TMDL indicates that to offset this dissolved oxygen deficiency, FPLE would be required to inject 105,000 lbs/day of oxygen at Upper Narrows (present system) or inject 65,000 lbs/day of oxygen at Lower Narrows. Therefore, only 0.619 lbs of oxygen is required at Lower Narrows for every 1.0 lb of oxygen at Upper Narrows ($65,000/105,000 = 0.619$).

In an effort to distribute oxygen injection based on loadings to GIP, (at the same time recognizing parties contractual obligations), the Department has assigned oxygen requirements based on the default allocation (105,000 lbs.day at Upper Narrows and 105,000 lbs/day at Lower Narrows) as follows:

Upper Narrows:

Allocation by contractual obligation

FPLE (14%)	$105,000 \text{ lbs} (0.14) = 14,700 \text{ lbs}$
Fraser (10%)	$105,000 \text{ lbs} (0.10) = 10,500 \text{ lbs}$
RPC (38%)	$105,000 \text{ lbs} (0.38) = 39,900 \text{ lbs}$
IP (38%)	$105,000 \text{ lbs} (0.38) = 39,900 \text{ lbs}$

Allocation by percent pollutant loading to GIP

FPLE fixed at 14,700 lbs	$\Rightarrow 105,000 \text{ lbs} - 14,700 \text{ lbs} = 90,300 \text{ lbs}$ to be split between mills.
Fraser (20.17%)	$90,300 \text{ lbs} (0.2017) = 18,177 \text{ lbs}$
RPC (32.64%)	$90,300 \text{ lbs} (0.3264) = 29,474 \text{ lbs}$
IP (47.23%)	$90,300 \text{ lbs} (0.4723) = 42,648 \text{ lbs}$

Difference between contractual and percent pollutant loading

FPLE fixed at 14,700 lbs	
Fraser	$10,500 \text{ lbs} - 18,177 \text{ lbs} = (7,677 \text{ lbs})$
RPC	$39,900 \text{ lbs} - 29,474 \text{ lbs} = 10,426 \text{ lbs}$
IP	$39,900 \text{ lbs} - 42,648 \text{ lbs} = (2,748 \text{ lbs})$

6. GULF ISLAND POND (GIP) OXYGEN INJECTION SYSTEM (cont'd)

Lower Narrows

Being that FPLE would be responsible for 105,000 lbs of oxygen injection at Upper Narrows with the mills at zero discharge and is contractually only contributing 14% to the Upper Narrows, the Department has assigned the remaining portion of that obligation at Lower Narrows. It is noted that only 0.619 lbs of oxygen is required at Lower Narrows for every 1.0 lb of oxygen at Upper Narrows.

FPLE responsibility at Lower narrows: $(105,000 \text{ lbs} - 14,700 \text{ lbs})(0.619) = 55,900 \text{ lbs}$.
 $105,000 \text{ lbs} - 55,900 \text{ lbs} = 49,100 \text{ lbs}$ to be allocated between the mills.

Allocation for the three mills based on pollutant loading to GIP

FPLE fixed at 55,900 lbs

Fraser	49,100 lbs (0.2017) = 9,884 lbs
RPC	49,100 lbs (0.3264) = 16,026 lbs
IP	49,100 lbs (0.4723) = 23,190 lbs

Re-allocation for the three mills considering over or under compensation at Upper Narrows

FPLE fixed at 55,900 lbs

Fraser	9,884 lbs + 7,677(0.619) lbs = 14,636 lbs
RPC	16,026 - 10,426(0.619) lbs = 9,570 lbs
IP	23,190 + 2,748(0.619) lbs = 24,891 lbs

Re-allocation expressed as a percentage of the total of 105,000 lbs

FPLE	55,900 lbs/105,000 lbs = 53.2%
Fraser	14,636 lbs/105,000 lbs = 13.9%
RPC	9,570 lbs/105,000 lbs = 9.1%
IP	24,891 lbs/105,000 lbs = 23.8%

Summary of Oxygen Injection

A summary of oxygen injection requirements (assuming the TMDL default allocation of 105,000 lbs/day at Upper Narrows and 105,000 lbs/day at Lower Narrows) based on pollutant loading to GIP, compensation for existing oxygen injection at Upper Narrows to offset pollutant loading to GIP and the existing contractual obligation of the partnership for the existing system at Upper Narrows

Upper Narrows

FPLE	14,700 lbs
Fraser	10,500 lbs
RPC	39,900 lbs
IP	39,900 lbs

Lower Narrows

FPLE	55,900 lbs
Fraser	14,636 lbs
RPC	9,570 lbs
IP	24,891 lbs

6. GULF ISLAND POND (GIP) OXYGEN INJECTION SYSTEM (cont'd)

Special Condition K, *Gulf Island Pond Oxygen Injection Requirements*, of this permit also provides the RPC with a mechanism to individually or in conjunction with other parties, propose an alternate oxygen injection system(s) or an alternate oxygen injection plan(s) regarding quantities of oxygen injected at each site to meet the oxygen injection requirements recommended in the TMDL. The alternate system(s) must be installed and fully operational on or before June 1, 2010.

7. AMBIENT WATER QUALITY MONITORING

There is some uncertainty in water quality modeling and the assignment of various parameter rates. In addition, there is uncertainty involved in the determination of the water quality target of chlorophyll-a levels used to describe the threshold level of an algae bloom. The goal of establishing the water quality threshold goal using 2004 water quality data was difficult as critical conditions of low flow and high water temperatures were not reached. As such, additional ambient monitoring of the pond will likely add confidence to the estimate of the present chlorophyll-a threshold. For this reason, it is recommended that the TMDL be implemented in phases of two or three step reductions with required ambient monitoring for point sources in cooperation with the Department.

As previously stated in Section 5(k) *Total phosphorus and Ortho-phosphorus*, of this Fact Sheet, Maine law 38 M.R.S.A. §465-B(5) (as amended via P.L. 2005, Chapter 409) states in part, “*The additional modeling must be based on ambient data collected under reduced loading conditions to Gulf Island Pond, including model parameters such as sediment oxygen demand, chlorophyll-a concentration at critical conditions and phosphorus assimilation and mineralization rates.*” In addition, the law states, “*By March 15, 2010, the Department of Environmental Protection shall issue revised licenses, as needed, that are based on the revised and approved total maximum daily load report for phosphorus created as a result of the modeling revisions pursuant to this section.*”

Therefore, Special Condition O, *Ambient Water Quality Monitoring*, of this permitting action requires the permittee to participate in annual monitoring of five sampling stations in Gulf Island Pond.

8. BEST MANAGEMENT PRACTICES PLAN

Best Management Practices (BMPs) are specified at 40 CFR 430.03(d). The primary objective of the Best Management Practices is to prevent leaks and spills of spent pulping liquors, soap, and turpentine. The secondary objective is to contain, collect, and recover at the immediate process area, or otherwise control, those leaks, spills, and intentional diversions of spent pulping liquor, soap and turpentine that do occur. Toward those objectives, the permittee must implement the Best Management Practices (BMPs) specified in 40 CFR 430.03 (c). The conditions established in Special Condition N of the permit are recommended by EPA Headquarters via a May 2000 Permit Guidance Document for the Pulp, Paper and Paperboard Manufacturing Point Source Category.

8. BEST MANAGEMENT PRACTICES PLAN (cont'd)

During the course of production and the maintenance of mill process equipment, minimal quantities of production liquors (liquids) may enter the mill process sewer system. It is not standard practice to indiscriminately sewer production liquors and steps are taken to minimize losses in production and maintenance practices in accordance with the mill's Best Management Practices (BMP) Plan for spent pulping liquor, soap, and turpentine. The focus of the BMP Plan is management of spent pulping liquor (the Rumford Mill does not currently process soap or turpentine) through the establishment of work practices and engineered controls necessary to satisfy regulatory requirements and BMP objectives. The BMP program uses a pollution prevention approach to achieve the following objectives:

- Prevent leaks and spills of spent pulping liquor.
- Contain, collect, and/or recover spills, leaks, and diversions at the immediate process area.
- Manage spills, leaks, and diversions to ensure adequate wastewater management.

MeadWestvaco implemented the Rumford Mill's BMP Plan in 1999 after completing a detailed engineering review of pulping and chemical recovery operations. The purpose of the engineering review was to determine the magnitude and potential routing of possible leaks, spills, and intentional diversions of spent pulping liquor that may occur due to startups, shutdowns, maintenance outages, production grade changes, normal operations, and power failures. MeadWestvaco used the process hazard analysis technique to evaluate the black liquor systems at the Rumford Mill. Process material releases that could occur, as well as safeguards for their prevention, detection, and containment were identified. The results of the hazard analyses served as the basis to identify needed improvements to work practices or engineered systems such as process monitoring or containment. A multi-disciplinary team was used for process review to involve operations personnel as early as possible in BMP Plan development. These staff members have the day-to-day responsibility and complete understanding of operation and maintenance work practices, and are the most suited to identify, implement, and sustain needed improvement to current practices.

Methods to monitor, measure, and report performance were also developed in accordance with Cluster Rule requirements. For compliance monitoring and documentation of performance, 24-hour composite samples on Primary Clarifier Effluent are analyzed daily for Chemical Oxygen Demand (COD) levels. Lower and Upper Action Levels were established to detect and properly respond to leaks, spills, or diversions of black liquor.

9. BIOLOGICAL MONITORING PROGRAM

Special Condition M, *Biological Monitoring Program*, of this permit requires the permittee to monitor bald eagles within 25 miles of the RPC mill. Other fish eating birds including, but not limited to, ospreys, great blue herons and common loons may be sampled as surrogates for dead young, sub-adult or adult eagles or non-viable bald eagle eggs. State and federal agencies with jurisdiction over fish and wildlife submitted comments to the Department pursuant to Department Rule Chapter 523, Waste Discharge License Conditions, requesting additional information regarding eagles and other fish-eating birds in the vicinity of pulp and paper mills.

10. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

With implementation of the May 2005 final TMDL and compliance with the terms and conditions of this permit, the Department has determined the existing water uses will be maintained and protected and the discharge will not cause or contribute to the failure of the Androscoggin River to meet standards of its assigned Class C classification.

11. PUBLIC COMMENTS

Public notice of this application was made in the Lewiston Sun Journal newspaper on or about May 30, 2000. The Department receives public comments on an application until the date a final agency action is taken on that application. Those persons receiving copies of draft permits shall have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to Chapter 522 of the Department's rules.

12. DEPARTMENT CONTACTS

Additional information concerning this permitting action may be obtained from and written comments should be sent to:

Gregg Wood
Division of Water Resource Regulation
Bureau of Land and Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017
E-mail: gregg.wood@maine.gov
Telephone: (207) 287-7693

13. RESPONSE TO COMMENTS

During the period May 13, 2005 through issuance of this permit, the Department solicited comments on the proposed draft permit for the RPC mill from state and federal agencies as well as parties that expressed interest in the proposed draft permit. The Department has received written comments from a number of parties/organizations and other permittees that include but are not limited to the Rumford Paper Company, International Paper, Fraser Paper NH LLC, Florida Power Light & Electric (FPL&E), the Conservation Law Foundation (CLF), the Natural Resources Council of Maine (NRCM), the Androscoggin Lake Improvement Corporation (ALIC), Maine Pulp & Paper Association (MPPA), Maine Rivers, Androscoggin River Alliance (MRA), the Town of Jay and a member of the general public.

The responses that follow have been organized by subject matter rather than by individual commenters as more than one or several entities had similar comments on any given subject matter. In some instances comments presented opposing points of view on the same topic. The Department has not prepared a response to each and every comment received but has prepared responses to significant comments that did or could have resulted in substantive changes to the permit.

13. RESPONSE TO COMMENTS (cont'd)

a. Dissolved Oxygen Standard (Use of 22°C vs 24°C)

Comment #1 - Several commenters contend that the oxygenation requirements described in the draft permits are based on an illegal Class C 30-day average dissolved oxygen (DO) standard of 6.5 ppm at 22 degrees Celsius. Specifically, commenters contend that compliance with the 30-day average dissolved oxygen of 6.5 ppm should be based on an ambient monthly average temperature for the Androscoggin River of 24 degrees Celsius, as required by EPA guidance, and that the use of any dissolved oxygen compliance temperature of less than 24 degrees Celsius constitutes a change in water quality standards that must be approved by EPA.

Response # 1 - The Department appropriately based its oxygenation requirements on meeting a 30-day average dissolved oxygen standard of 6.5 ppm at an ambient water temperature of 22 degrees Celsius. This DO level is needed to support the narrative Class C standard in that Class C waters shall be of sufficient quality to support all species of fish indigenous to the receiving waters (in this case, cold water salmonids) and maintain the structure and function of the resident biological community. The Department determines the ambient water temperatures utilized in its modeling efforts on a case-by case basis given the geographic location and hydraulic characteristics of the waterbody being modeled. While 24 degrees Celsius is reasonable considered the upper limit of salmonid growth, the record demonstrates that using 22 degrees Celsius as an upper limit captures the majority of the time during which salmonids would be growing and thus is a reasonable interpretation of the applicable narrative standard. This issue is addressed in more detail in the Department's Responses to Comments, Androscoggin River TMDL (April 2005).

The Department notes that, in approving the Department's TMDL for Gulf Island Pond, which was based on meeting a 30-day average DO standard at 22 degrees Celsius, EPA stated:

"With respect to the [Gulf Island Pond] DO narrative (monthly average) TMDL target, we recognize that some commenters objected to the State's use of 22° C rather than ambient temperatures, particularly in light of DEP's past practice. However, states have some discretion in interpreting their narrative water quality standards, and in this case Maine explained that 22° C is very close to the upper range of the temperature at which growth occurs, and that using this temperature would be consistent with the narrative water quality standard which allows for some change in aquatic life as long as all indigenous fish are supported and the structure and function of the resident biological community is maintained."

13. RESPONSE TO COMMENTS (cont'd)

a. Dissolved Oxygen Standard (Use of 22°C vs 24°C)

See the documentation attached to EPA's July 18, 2005 notification of approval of the Department's TMDL for Gulf Island Pond. In a footnote, EPA also stated: *"The commenters also asserted that DEP's change in determining how the 6.5 ppm DO [standard] would be implemented constitutes a water quality standards change that required EPA review and approval before it can be implemented. We agree that in some circumstances, a new interpretation of a water quality standard may constitute a revised standard subject to EPA review and approval. However, we do not believe that the State's action here is such a circumstance."*

Therefore, the Department maintains the position that the use of 22 degrees Celsius to develop applicable limitations in this permitting action is protective of indigenous cold water fish species and will support the structure and function of the resident biological community.

b. Additional Instream Aeration (125.3 (f) Demonstration)

Comment #1 - Several commenters contend that the use of additional instream aeration to meet water quality standards in Gulf Island Pond is in violation of Department and EPA regulations and is therefore illegal. Specifically, one commenter contends that, pursuant to Department's Chapter 524 Rules and EPA's 40 CFR 125.3(f) regulation, the use of non-treatment techniques, such as instream aerators, may be considered as a method of achieving water quality standards on a case-by-case basis only when the discharger demonstrates that such a technique is the preferred environmental and economic method to achieve standards after consideration of alternatives such as advanced waste treatment and other available methods. The commenter further contends that the demonstration provided to date by the mills is inadequate in that the Department has not determined at what level reductions in BOD discharges cease to be effective in raising dissolved oxygen levels in Gulf Island Pond. The commenter states that BOD discharges must be reduced at least to that level before additional oxygenation is considered as a remedy to non-attainment. The commenter states that the Department has made no demonstration that further reduction would not be useful. The commenter also states that running the oxygenation system in Gulf Island Pond is enormously expensive [\$19-\$34 million over 15 years] and is comparable to the range that the Neil McCubbin report gives for modernizing the RPC mill through the use of pressurized oxygen delignification and other in-plant pollution prevention technologies.

13. RESPONSE TO COMMENTS (cont'd)

b. Additional Instream Aeration (125.3 (f) Demonstration (cont'd)

Response #1 - The Department disagrees with the commenter's assertion that the Department has made no demonstration that further reductions would not be useful. This issue is addressed in detail in sections 4d-4h of the Fact Sheet. In addition, a June 16, 2005 e-mail from Paul Mitnik (Department modeler) to Gregg Wood (Department permit writer) indicates that a model run was conducted at the lower BOD levels that might be realized if McCubbin's recommendations for reductions were implemented and realized. The BOD inputs to the model run were Fraser at 1,400 lbs/day, RPC at 1,130 lbs/day and IP at 1,650 lbs/day. The model indicates that even at these unprecedented BOD levels, 105,000 lbs/day of oxygen would still be required at the existing Upper Narrows station as prescribed in the present draft permit. Oxygen requirements would be reduced from 105,000 lbs/day to 43,750 lbs/day at the Lower Narrows. The Lower Narrows facility would still need to be constructed even with the BOD limits at extraordinary low levels as described above. It should be noted the cost of running the oxygen system in Gulf Island Pond is shared by Fraser Paper, RPC, IP and FPL&E so that the \$19-\$34 million cost cited by the commenter is not a cost borne by any one entity.

The Department's evaluation of the trade-off between additional BOD reductions and additional oxygen injection is that a more targeted injection of oxygen at Lower Narrows that is deeper and closer to the DO non-attainment zone provides a greater benefit than unprecedented BOD reductions. Therefore, the Department has made the determination that the dischargers have demonstrated that oxygen injection remains the preferred environmental and economic method (at least for the term of the permit) to achieve dissolved oxygen standards in Gulf Island Pond in those areas of non-attainment deep in the pond after consideration of alternatives such as advanced waste treatment and other available methods.

The Department acknowledges that EPA's July 18, 2005 notification of approval of the Department's TMDL for Gulf Island Pond, EPA specifically stated that it was not endorsing the § 125.3(f) demonstration. Therefore, the reference to EPA in this statement has been removed from the Fact Sheet attached to the final permit.

However, it is noted EPA's July 18, 2005 letter also stated that "*...in this case modeling shows that pollution controls alone would not be sufficient to enable [Gulf Island Pond] to attain water quality standards. Therefore, reliance on instream aerators to supplement pollution controls is a reasonable approach.*"

13. RESPONSE TO COMMENTS (cont'd)

c. GIPOP Agreement

Comment #1 - Commenters contend that the existing Gulf Island Pond Oxygenation Project (GIPOP) Agreement controls the allocation for any increased oxygenation of the Gulf Island Pond that may be required and that the Department has improperly injected itself into contractual issues between the GIPOP Partners. The commenters request that the Department take no position concerning the applicability of the existing GIPOP Agreement to any additional oxygenation requirements.

Response # 1 - The requirement that additional oxygen be injected into Gulf Island Pond is a proper exercise of the Department's regulatory authority and responsibility under State law and the CWA. By imposing this requirement, the Department is appropriately holding all parties responsible for taking sufficient measures to mitigate the impact of their discharges on the failure of Gulf Island Pond to meet dissolved oxygen water quality standards. As stated by the EPA in its July 18, 2005 notification of approval of the TMDL for Gulf Island Pond, "*it is the State's prerogative to determine how oxygenation should be required, and from whom, consistent with its permitting and licensing authorities.*" The Department agrees.

Moreover, this requirement is not contrary to the terms of the GIPOP Agreement on its face. The agreement covers the construction, operation and maintenance of an oxygenation facility at or near Upper Narrows designed to inject not less than 27,000 lbs/day into Gulf Island Pond. It does not speak to the relative obligation of any given party with regard to any additional oxygenation requirements imposed by future regulatory actions. Even if it did, the license does not prescribe how each party will provide the total additional oxygen required to be provided at Upper and Lower Narrows. In addition, each party or the GIPOP partnership, is free to propose alternative measures to meet dissolved oxygen standards. To the extent that any party argues that its participation in a private partnership to increase dissolved oxygen levels in Gulf Island Pond somehow precludes state regulators from requiring measures beyond those contemplated by that partnership, the Department flatly rejects that argument.

d. TSS limits (As they relate to aquatic life standards in the Livermore Falls impoundment)

Comment # 1 - Several commenters objected to the Department's methodology in establishing the 60-day rolling average mass limitations for TSS for the mills in that mathematically splitting the difference between the loadings of TSS that indicate attainment and non-attainment of aquatic life standards (based on macro-invertebrate sampling) is not a scientifically valid methodology to establish the TSS loading limits for the Livermore Falls impoundment. Commenters objected to the Department not including the TSS load of 21,279 lbs/day associated with the 2002 macro-invertebrate sampling event that indicated non-attainment. In fact, one commentor has requested the Department establish said load as the 60-day rolling average limit for the impoundment.

13. RESPONSE TO COMMENTS (cont'd)

d. **TSS limits (As they relate to aquatic life standards in the Livermore Falls impoundment)**

Response # 1 - The Department maintains the position that it is prudent to place more weight on three other higher data points (24,807 lbs/day – 30,508 lbs/day) in evaluating the low-end of the TSS range that will result in attainment of aquatic life criteria than on the 21,279 lbs/day as it is considered to be an anomaly. The Department believes it is reasonable to split the mathematical difference between the 30,508 lbs/day attainment load and the 1995 non-attainment load of 40, 258 lbs/day along with annual monitoring to more accurately define the line between attainment and non-attainment. In the July 18, 2005 letter approving the TMDL, the EPA concurred that this approach to establishing the 60-day rolling average TSS limit for the impoundment was reasonable. Therefore, the Department is maintaining the limits as proposed.

It is noted however that if future macro-invertebrate sampling of the impoundment indicates a more stringent limitation is necessary to achieve and or maintain water quality standards, the permits will be reopened pursuant to a Special Condition R, *Reopening of Permit For Modifications*, to establish the appropriate limit.

e. **Warm weather season**

Comment # 1 - One commenter questioned why the Department switched the start of the more stringent warm weather limitations for BOD, TSS and phosphorus from May 1st to June 1st which allows the mills to pollute more.

Response # 1 - The Department had originally recommended the warm weather limits for said parameters become effective starting May 1st of each year. After a number of modeling iterations and review of ambient receiving water temperature and flow data for the Androscoggin River, the Department concluded that it is unlikely both elevated receiving water temperatures and critical low flow conditions, which are the foundation of the modeling for the TMDL, will occur in the month of May but that these conditions are likely to occur in the month of June. Therefore, the Department exercised its best professional judgment to have the more stringent warm weather limitations become effective June 1st of each year.

f. **Lax limits for BOD, TSS, and phosphorus – compared to other mills in the US and Finland**

Comment #1 - Commenters stated that the RPC mill's historic discharge of BOD, TSS and phosphorus is much higher based on a per ton of finished product basis than mills of the similar size and age. Commenters indicate that discharges at the RPC mill are generally good but discharge levels of phosphorus are much greater per ton of finished product than well performing mills in the U.S. and Finland.

13. RESPONSE TO COMMENTS (cont'd)

f. Lax limits for BOD, TSS, and phosphorus – compared to other mills in the US and Finland (cont'd)

Response #1 - The limitations for BOD, TSS and phosphorus established in the draft permits (derived from the TMDL) are water quality based limitations that the Department believes are necessary to achieve applicable water quality standards whereas the commenters are making recommendations regarding technology based limitations. As page 30 of the Fact Sheet of the permit indicates, the EPA establishes National Effluent Guidelines (NEG's) or technology based limitations for bleached kraft mills found in 40 CFR, Part 430. The NEG's establish limitations for existing older mills as well as more stringent limitations for new mills. The limitations in the NEG's are based on a statistical evaluation of effluent data for like mills (process wise, newer versus older) within this country and other parts of the world and said limits represent best practicable treatment (BPT). The water quality based limitations established in the draft permits as well as a statistical evaluation of the IP's and RPC's discharges of BOD and TSS for the past five years are lower than the new source performance standards (NSPS) established in the NEG's for new mills indicating both mills are performing well when compared to mills evaluated to establish the limits in the NEG's.

Special Condition Q, *Schedule of Compliance*, of the RPC permit requires an evaluation of the phosphorus discharge levels and the BOD & TSS treatment performance in a low phosphorus environment and shall include a scope of work and schedule to implement improvements, recommendations, process control measures or other like measures found necessary and appropriate for compliance with the permit license limits.

g. TMDL limits for BOD, TSS, phosphorus, O2 injection – Not scientifically defensible

Comment #1 - Several comments indicated the TMDL prepared by the Department is flawed and not scientifically defensible as more monitoring and analysis is needed to better understand the dynamics of the Androscoggin River system before limitations are imposed to bring the receiving water into attainment. Without doing so, these commenters believe that the limits for BOD, TSS, phosphorus and oxygen injection requirements are arbitrary and capricious and should be withdrawn and new limitations established after a scientifically defensible study of the Androscoggin River and Gulf Island pond is conducted.

Response #1 - The Department's May 2005 Final TMDL for the Androscoggin River is based on consideration of ambient water quality data and discharge monitoring data dating back to the mid to late 1980's. The Department has more ambient water quality data on the Androscoggin River north of the Gulf Island Dam than any other waterbody in the State of Maine. The Department spent at least two years soliciting input/comments from interested parties to construct the best model possible based on information available at that time. The Department maintains the position that the model utilized to prepare the May 2005 Final TMDL is scientifically defensible. The EPA's July 18, 2005 letter approving the TMDL states in a number of instances that limitations and or monitoring recommendations in the TMDL are reasonable based on the available information.

13. RESPONSE TO COMMENTS (cont'd)

g. **TMDL limits for BOD, TSS, phosphorus, O2 injection – Not scientifically defensible**

The Department and the State of Maine Legislature acknowledged the fact that collecting additional information on ambient water quality and point and non-point discharges is important and may affect the final limitations as recommended in the final TMDL, particularly for phosphorus. As a result, the Legislature adopted Maine law 38 M.R.S.A. §465-B(5) (as amended via P.L. 2005, Chapter 409) which requires additional modeling of Gulf Island Pond in order to review and, as necessary, revise the TMDL for phosphorus. Any model revisions must be completed by March 15, 2009 and revised licenses must be issued, as needed, by March 15, 2010, based on any revised TMDL.

h. **Biological Monitoring**

Comment #1 – Both the RPC and IP mills have objected to the inclusion of a Special Condition in the permits that requires biological monitoring of non-viable eggs and dead young sub-adults or adults of bald eagles, ospreys, great blue herons and common loons from nests on the main stem of the Androscoggin River and on major tributaries within twenty five (25) miles of each mill. The mills object because they believe the requirement is unnecessary as there is no evidence of a taking of eagles or eagle habitat and that the mills have, through the “above/below” dioxin fish tissue testing conducted by the mills and the Department, successfully demonstrated that dioxin is not being discharged from the mills. The mills have indicated a willingness to enter into a limited surveillance program with the USFWS and Maine IF&W over the next two years to confirm the resurgence of the eagle population on the Androscoggin River.

Response #1 – The elements of the monitoring program in Special Condition M of the permit are consistent with recommendations the USFWS made to the EPA in their August 18, 2000 Biological Opinion (BO). The BO was prepared by USFWS following an Endangered Species Act (ESA) Section 7 consultation between the USFWS and the EPA on all six kraft pulp and paper mill permits in Maine.

The 8/18/00 BO concluded that although the reissued permits would not jeopardize the bald eagle, the issuance of the permits could result in the “incidental take” of eagles due to dioxin and furan contamination in fish. Based on the incidental take, the USFWS identified “reasonable and prudent measures” and “terms and conditions” that must be implemented by the EPA and the mills to avoid liability for the prohibited “take” under the provisions of the ESA. In essence, the terms and conditions required that the NPDES permits establish a bald eagle monitoring program.

It is noted the pulp and paper industry formally commented on the BO when it was in draft form stating that the BO did not comply with the legal and scientific standards of the ESA, was inconsistent with the bald eagle productivity data for nesting eagles near kraft mills in Maine, inappropriately relied on a hazardous assessment model with uncertain and disputed inputs, and improperly concluded that issuance of the kraft mill permits could result in increased concentrations of dioxins and furans in fish and thereby might cause the “incidental take” of bald eagles in the vicinity of the mills.

13. RESPONSE TO COMMENTS (cont'd)

h. Biological Monitoring – (cont'd)

In a letter dated April 13, 2000, from the USFWS to EPA, the USFWS sought assurance from the EPA that it (EPA) would require the State of Maine to include the monitoring plan in the BO in all six MEPDES permits issued by the State. In a letter dated May 2, 2000, from the EPA to the USFWS, the EPA assured the USFWS that it (EPA) would require the State of Maine to incorporate the monitoring plan in permits issued to the mills or else EPA would object to the permit. The EPA stated that if it objected to the permit, the state could not issue a permit. If the objection went unresolved, the right to issue the permit reverted back to the EPA and the EPA would reissue the permit with full ESA consultation recommendations just as if the MEPDES program had never been approved.

Thus, biological monitoring is included in the permits for the IP and RPC mills. On a number of occasions over the past year, the two mills have indicated they have an interest in approaching the USFWS and Maine IF&W to enter into an agreement outside of a MEPDES permitting action to conduct the biological monitoring. To date, no such agreement has materialized, therefore, the biological monitoring remains as a Special Condition in the MEPDES permits for both the IP and RPC mills.

i. Funding of studies for Androscoggin Lake and the Dead River

Comment #1 - A commenter has recommended that the permits for Fraser, RPC and IP should contain requirements for the three mills to fund monitoring to assess water quality and wildlife impacts to Androscoggin Lake and the Dead River. Monitoring and assessment includes areas such as persistent bioaccumulative toxins (PBT), other toxics such as manganese, zinc, chromium, barium, mercury, as well as wetlands monitoring. The commenter states that it believes the draft permits for the RPC and IP mills will not protect or allow for restoration of Androscoggin Lake and or the Dead River.

Response #1- The Department acknowledges the fact the Dead River may not be meeting Class B dissolved oxygen standards water quality but the Department is uncertain as to the cause given the complex and not yet understood dynamics of the hydraulics between the Dead River, the Androscoggin River and Androscoggin Lake. Text in the TMDL indicates additional information needs to be obtained before conclusions can be drawn as to who or what is responsible for dissolved oxygen depletion in the Dead River.

As for Androscoggin Lake, the Department has calculated that only 0.4% of the annual phosphorus loadings to the lake are from point source contributions due to backflow events that overtop the Dead River Dam and approximately 78% of the annual phosphorus loading is attributed to sources within the watershed.

13. RESPONSE TO COMMENTS (cont'd)

i. Funding of studies for Androscoggin Lake and the Dead River (cont'd)

Therefore, the Department finds no basis to accept the commenters request to incorporate a requirement into the permits for the mills to fund water quality and wildlife assessments in the Dead River and Androscoggin Lake. The Department is however going to continue to jointly work with the ALIC in collecting nutrient information in the river and lake to gain additional information on trends in ambient levels and identify potential sources of phosphorus that cause or contribute to water quality issues.

j. Compliance schedules

Comment # 1 - Commenters have objected to the Department establishing schedules of compliance of up to five years (term of a permit) for certain parameters listed in the permit and the second stage/alternate oxygenation program. The commenters assert that the schedules of compliance are illegal pursuant to State law and federal regulations and the permits must be as short as possible. In addition, one commenter stated that “[w]here state water quality standards were promulgated prior to July 1, 1977, water quality based effluent limitations in MEPDES discharge permits must be sufficient to attain state water quality standards immediately upon issuance of the permit.” Maine’s narrative standards requiring that waters of the Androscoggin be suitable for use as habitat for indigenous fish, the commenter argued, were promulgated prior to 1977; and to the extent the Department’s interpretation of those standards has become more stringent, any grace period for the attainment of the stricter standards has passed. The commenter thus concluded that compliance schedules implementing that standard were not permissible.

Response # 1 – The Department disagrees with the commenters’ statement that schedules of compliance are illegal. Maine law 38 M.R.S.A. §414(2) *Schedules of Compliance*, clearly authorizes the Department to establish schedules of compliance for water quality based limitations within the terms and conditions of a license. The law states that the schedule(s) may include interim and final dates for attainment of specific standards necessary to carry out the purposes of the law and must be as short as possible based on consideration of the technological, economic and environmental impact of the steps necessary to attain those standards. In addition, Department rule Chapter 523, Waste Discharge License Conditions, § Section 7, *Schedules of Compliance*, states in part, “*if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.*

(ii) *The time between interim dates shall not exceed 1 year, except that in the case of a schedule for compliance with standards for sewage sludge use and disposal, the time between interim dates shall not exceed six months.*

(ii) *If the time necessary for completion of any interim requirement (such as the construction of a control facility) is more than 1 year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.”*

13. RESPONSE TO COMMENTS (cont'd)

j. Compliance schedules (cont'd)

In fact, nothing contained in the above-cited law limits compliance schedules to the term of the permit, where the schedule is “as short as possible,” based considerations of technological, economic and environmental impacts. The EPA has acknowledged that a schedule of compliance is permissible for the term of a permit (5 years) and longer in some cases, if the schedule is justified and is as short as possible based on consideration of the technological, economic and environmental impact of the steps necessary to attain State water quality standards. For example, federal regulation 40 CFR Part 132, Appendix F, Great Lakes Water Quality Initiative Implementation Procedures, Procedure 9, Compliance Schedules, Section B, §(2) states “*When the compliance schedule established under paragraph 1 goes beyond the term of the permit, an interim permit limit effective upon the expiration date of the permit shall be included in the permit and addressed in the permit’s fact sheet or statement of basis. The administrative record for the permit shall reflect the final limit and its compliance date.*”

The Department agrees that the law only permits compliance schedules to implement effluent standards based on water quality standards adopted after July 1, 1977. See 38 M.R.S.A. §414-A(2). The biological narrative standard to which the commenter refers, however, was only adopted in its present form in 1985. Moreover, translation of the narrative standard to a numeric standard is necessarily site specific; it will vary with the existing conditions, the nature of the problem and the method chosen to address the problem. Given this, it is the Department’s position that a new interpretation of a narrative standard, deriving a more stringent water-quality-based numeric standard for a particular facility, results in a newly adopted standard. A new interpretation may be based on newly developed information that allows the Department to more fully understand a particular water quality problem and the measures needed to remedy it. The draft permit for the RPC mill establishes a five-year schedule of compliance for final TSS and phosphorus limitations and a five-year schedule of compliance for the oxygen injection requirements within Gulf Island Pond. The BOD requirements for the mill are to be met immediately and have no compliance schedule. These schedules are both appropriate and necessary for the following reasons

The permit establishes new and more stringent limits for TSS. These are based on new information regarding the effects of TSS on the biological community and dissolved oxygen levels. TSS can have the effect of smothering small aquatic organisms on the bottom, resulting in the loss of structure and function of the aquatic community, as has been the case in the Livermore impoundment. The ability to definitively evaluate such effects now relies on the biocriteria rule adopted in 2003. To make effluent limits consistent with the actual in-stream monitoring, TSS is regulated using a 60-day average for the purpose of protecting aquatic life. Additionally, TSS can settle to the river bottom decay and contribute to SOD that in turn reduces dissolved oxygen in the water. This contribution was defined in the TMDL and is used as the basis of new effluent limits regulating TSS as an annual average for the first time.

13. RESPONSE TO COMMENTS (cont'd)

j. Compliance schedules (cont'd)

The permit also sets new limits for phosphorus base on new information. Phosphorus limits are important for two related reasons. First, phosphorus is a critical factor in promoting excess growth of algae, and these growths can cause objectionable blooms that impair uses such as swimming. The designated use of swimming in Class C waters was added after 1977. Historically, the transmission of sunlight through the water column was hindered by the highly colored water, thus preventing the growth of algae, notwithstanding available phosphorus concentrations. Legislation requiring color reductions in pulp mill discharges was enacted in 1989 and the resulting reduced color in the river allowed the growth of objectionable levels of algae that periodically impair swimming as a designated use. From information in the TMDL, the Department has determined that algae blooms may occur when the chlorophyll-a concentration exceeds 10 ppb. Second, as algae dies, it can sink to the bottom and decay, causing the depletion of oxygen at a later time as part of the sediment oxygen demand. Through the TMDL, the contribution of algae to SOD is now better understood. As discussed above, additional growth of algae due to reduced color has added to the SOD load. This has contributed to non-attainment of dissolved oxygen levels for protection of salmonid fish first proposed by EPA in 1986. This constitutes a new interpretation of the narrative standard.

In addition, the Department considered relevant information concerning technological, economic and environmental impacts in establishing compliance schedules. Achieving long term TSS reductions as well as other pollutant loading reductions such as total and ortho-phosphorus will entail much broader investigations/evaluations into the mill's manufacturing processes, spill control plans, a phosphorus mass balance for the mill, pollution prevention and a comprehensive evaluation of the waste water treatment facility to name a few. The need to reduce the combination of TSS and phosphorus to levels required to attain water quality standards requires long-term stability for the both the mill's manufacturing and treatment processes. In his review of the mill, Neil McCubbin projected that the final phosphorus effluent level that could be attained after application of significant and costly improvements was still above the final effluent limitations needed pursuant to the TMDL. Based on the collective list of evaluations listed in Special Condition Q of this permit, the Department has deemed a schedule of five years to be legal, necessary and is as short as possible based on consideration of the technological, economic and environmental impact of the steps necessary to meet TSS limitations in the permit.

As for the five-year schedule of compliance for the oxygen requirements, the Department has required oxygen injection since the early 1990's, in recognition of dissolved oxygen problems in Gulf Island Pond. The location and quantity of oxygen injection were based on information available at the time. Since then, the Department has continued extensive studies of the Pond and developed new information regarding it. Using this information and through the TMDL analysis, this permit imposes new, more stringent requirements for increased oxygen injection. In setting a time schedule, the Department took into

13. RESPONSE TO COMMENTS (cont'd)

j. Compliance schedules (cont'd)

consideration the scope of work and schedules for mills to come into compliance with effluent limits that affect dissolved oxygen levels. It is reasonable to have the facilities address effluent parameters first and then complete construction of new oxygen facilities in order to maximize understanding of the river under reduced loadings triggered by the permit limits for TSS and phosphorus. These reduced effluent limits will affect ambient river conditions which in turn can be used to evaluate the accuracy of model outputs for requiring oxygen in the deeper portions of Lower Narrows. In addition, more intense ambient water quality monitoring data collected pursuant to Special Condition O, *Ambient Water Quality Monitoring*, of the draft permit may indicate that less oxygen needs to be injected into the impoundment than the TMDL recommends as pollutant loading reductions are realized, thus, a smaller or reconfigured oxygen injection system may be appropriate. The five-year schedule of compliance for oxygen injection requirements in the draft permits is reasonable and appropriate to determine the most cost effective manner in which to attain dissolved oxygen standards.

k. Weekly average BOD limitation

Comment #1 – The permittee objects to an assessment made by the EPA in their July 18, 2005 TMDL approval letter the states;

However, since Maine's DO criterion of 5.0 ppm is expressed as a minimum value, not a seven day average, the 7 day average loadings should be implemented in licensing as daily maximum loadings/daily maximum permit limits. In addition, the alternative of increasing the 7-day average loadings by multipliers greater than one to obtain daily maximum loadings, as presented under "Licensing Recommendations" in Table 8, is therefore not appropriate and should not be used.

Response #1 – The Department notified the EPA shortly after the TMDL approval letter was received that it also disagreed with EPA's assessment/statements regarding the weekly versus daily maximum BOD limitations. In a letter dated August 31, 2005 to the EPA, the Department provided a more in depth explanation as to the derivation of the weekly average BOD and how the statistically derived daily maximum limit was protective of both the Class C and Class B instantaneous DO criteria of 5.0 ppm and 7.0 ppm respectively. In the 8/31/05 letter, the Department committed to establishing applicable monthly average, weekly average and daily maximum limits for BOD in both the IP and Rumford Paper Company's permits.

13. RESPONSE TO COMMENTS (cont'd)

k. Weekly average BOD limitation

In a letter dated September 8, 2005 to the Department, the EPA wrote;

In light of your explanation of the model, as well as the additional information provided in your letter (i.e., your expectation that the diurnal flux will decrease after implementation and your commitment to follow-up monitoring to verify the model predictions) we defer to your conclusion that the approach used by the State provides a reasonable demonstration that the TMDL provides for attainment of the minimum dissolved oxygen criterion. Further, we agree that the establishment of daily maximum permit limits as DEP has proposed, in addition to weekly average limits, appropriate limit variability to no more than past variability, which further supports compliance with the minimum dissolved oxygen criterion.

Therefore, the Department is establishing monthly average, weekly average and daily maximum limits for BOD as proposed in the May 2005 final TMDL.